Southern Cyprus, 2000 - 1500 B.C.

Volume I

Text

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To

Professor Seton Lloyd

ABSTRACT

The excavations and regional survey conducted by the Kent State University Cyprus Archaeological Expedition at Episkopi Phaneromeni have contributed much to the understanding of the little known social and cultural history of southern Cyprus in the Early and Middle Bronze Age.

Chapter I. In order to use the material from Phaneromeni as a criterion for the analysis of the local culture, an initial requirement was the detailed study of the architectural features and their contents at the Middle and Late Cypriot IA settlements (Areas G and A).

Having determined the degree of urbanisation at the site, and what artifacts, fauna, and flora were employed or exploited by its inhabitants, viable typologies are established for the lithic, metal, terracotta and pottery finds.

Chapter II presents the lithic typology and chronology (excluding chipped stone) that covers 33 categories. It concludes with a detailed discussion of Mehen and Zenet, the so-called "gaming stones".

Chapter III presents a reassessment of pre-Late Cypriot II copper smelting technology. All well documented metal objects of this period from the Curium, Limassol and Paphos Museums are classified and dated. The discussion includes the data provided by 54 new analyses, and emphasises the dangers of comparing results from different laboratories.

Chapter IV presents the terracotta typology and chronology covering 5 categories.

Chapter V presents the new ceramic typology and terminology, e.g. Red Polished I South Coast, Red Polished III Mottled, Red Polished IV, Drab Polished Blue Core and Red Polished Punctured ware. Emphasis is on the relative percentages of each ware rather than a detailed evolution of shapes and decoration.

Chapter VI presents the results of the regional survey and provides topical and environmental information on the main habitation/cemetery

complexes. The relative percentages of wares at each site provide a settlement pattern for the period, which is then compared with an analysis using the technique of non-metric multidemensional scaling.

TABLE OF CONTENTS

VOLUME I

	Page
ABSTRACT	1
TABLE OF CONTENTS	2
PREFACE	5
INTRODUCTION	8
CHAPTER I	
The Architectural Remains at Episkopi Phaneromeni	
Introduction	11
Area G	13
Area A	16
Discussion	55
Faunal remains	64
Botanical remains	66
Molluscan remains	67
CHAPTER II	
The Lithic Industry of Episkopi Phaneromeni and pre Late Bronze Age Sites in the Area	
Introduction	69
Axe	71
Adze	73
Rubber-pounder	74
Rubbing stone	75
Grinder-pounder	76
Pounder	77
Pestle	79
Hammerstone	79
Pecking stone	80
Whetstone	81
Mace-head	82
Stone spindle-whorl	84
Perforated stone (hammer)	85
Button or toggle	88
Stone weight. Barrel-shaped	90
Stone weight with suspension hole.	90
Tethering stone	92
Stone bowl	93
Mortar	93
Stone basin or trough	94
Pedestal basin	95
Saddle quern	96
Jar cover?	97
Work surface?	99
Pivot stone	99
Threshold (?)	100
Unidentified	101
Pendant	102
Bead	103
Necklace	104
Earring	104

		Page
	Toggle	105
	Unidentified (jewellery (?))	105
	Gaming stone (Zenet)	106
	Gaming stone (Mehen)	122
CHAPTER III		
	The Metal Work of Southern Cyprus Prior to the Late Cypriot II Period	
	Introduction	139
	Knife	145
	Dagger/spearhead	153
	Sword	157
	Razor (?)	158
	Pin	160
	Needle	167
	Awl	169
	Nail, tack	170
	Axe	171
	Depilatory tweezers	172
	Miscellaneous	173
	Discussion	175
CHAPTER IV		
	The Terracottas from Episkopi Phaneromeni	
	Introduction	190
	Spindle-whorl	190
	Type 1a	194
	Type 1b	195
	Type 1c	195
	Type 2a	195
	Type 2b	196
	Type 3	196
	Bead	206
	Loomweight	208
	Figurine	210
	Pottery roundel	214
	Miscellaneous clay objects	217
	Griddle	219
	Basin	220
CHAPTER V		
	The Ceramic assemblage from Episkopi Phaneromeni	
	Introduction	221
	Red Polished I South Coast Ware	223
	Red Polished III Ware	225
	Red Polished III Mottled Ware	227
	Red Polished IV Ware	229
	Red Polished Punctured Ware (Episkopi Ware)	232
	Drab Polished Blue Core Ware	234
	Proto White Slip Ware	237
	White Painted and Red-on-Black Ware	239
CHAPTER VI		
	Bronze Age Settlement Patterns in Southwest Cyprus	

	Page
Introduction	240
Episkopi Phinijin	251
Erimi Kafkalla	251
Kandou Balies	262
Sotira Kaminoudhia	263
Paramali Mandra tou Pouppou	271
Evdhimou Shilles	273
Evdhimou Stympouli	276
Amolo	278
" Alatomi	282
" Kilades	285
" Ambelovounos	286
" Beyouk Tarla	287
Anoyira Trapezi	292
" Kannavokambos	296
" Livadhia	297
" Kolokos	300
Stavlismi	300
Ayios Ioannis	300
" Peralijithias	301
" Kambos	309
Discussion	309
Conclusion	332
Computer analysis	334
CHRONOLOGY	336
CONCLUSION	339
APPENDIX I	342
CATALOGUE OF SITES AND PLACENAMES SHOWN ON FIGURES 1 & 2	347
TABLES	348
ABBREVIATIONS	363
BIBLIOGRAPHY	364
CATALOGUE OF LITHIC ARTIFACTS FROM EPISKOPI PHANEROMENI (EXCLUDING CHIPPED STONE)	378 432

Volume II

LIST OF FIGURES	1-4
FIGURES 1 - 87	

PREFACE

The idea of making a study of the Cypriot Middle Bronze Age first occurred to me in 1970 when supervising an archaeological survey at Dhali Kafkallia. It was then that I realised the limitations of the only textbook on the period, Professor Paul Astrom's The Middle Cypriot Bronze Age, published in 1957, which by the nature of the evidence was almost entirely restricted to funerary material. For this reason, it proved of little assistance in the interpretation and dating of the plain, weathered, artifactual assemblage from the fortified settlement, and I felt that a complementary study would be of much use to the field archaeologist.

In 1974 after an archaeological interlude in Iran and Afghanistan, a chance to pursue my Cypriot interests presented itself with the new Kent State University Expedition to Kalokhorio Khalandrikas, directed by Dr. James R. Carpenter. The events of that summer led to the abandonment of this site in favour of Episkopi Phaneromeni, where excavations started in 1975, under the auspicies of the same university.

In undertaking the research for this thesis I have incurred many obligations to a large number of people, but to none am I more beholden than Dr. V. Karageorghis, Director of the Department of Antiquities of Cyprus, without whose support this work would have been impossible, and Dr. J.R. Carpenter who gave me total access to the Phaneromeni material.

I am also indebted to Mr. P.J. Parr, who as Lecturer in Palestinian Archaeology, was prepared to act as my supervisor and embark on a somewhat uncharted voyage through the Middle Bronze Age of southern Cyprus.

I am very grateful to Dr. V. Karageorghis and Dr. K. Nicolaou for permission to study and present here, much unpublished material from the Nicosia, Limassol, Paphos and Kourion Museum collections. Dr. Ino

Nicolaou was particularly helpful with regard to my frequent requests to study pottery from the Nicosia Museum storerooms, sometimes with little advance notice. These were always fulfilled efficiently and speedily with the able assistance of the Storekeeper, Mr. N. Constantinedes. Various forms of assistance were received from Mr. M. Loulloupis, Mr. D. Christou and Dr. S. Hadjisavvas, with whom, over the years, I had many fruitful discussions on various aspects of my research.

Mr. N. Petrides and O. Michal, Ch. Polykarpou and T. Herodotos, custodians of the Limassol, Kourion House and Paphos Museums, were cheerfully willing to bring out from their stores many dozens of objects for study. To Mr. Polykarpou and my numerous friends in Episkopi village I owe 4 happy years and much information on local customs and a way of life that is rapidly disappearing.

One important aspect of this thesis could not have been undertaken without the co-operation of Dr. P.T. Craddock of the British Museum Research Laboratory, who analysed the metal finds from Phaneromeni and some other sites. Permission for these analyses was kindly granted by Mr. D.E.L. Haynes, then Keeper of the Department of Greek and Roman Antiquities at the British Museum. My work has benefited from valuable advice and discussions with Dr. Craddock in the highly specialised field of metallurgy. I also wish to thank Mr. and Mrs. A. Kenneford of Ayios Demetrianos, Paphos, both retired metallurgists. They arranged for the remaining analyses to be carried out by a private firm in England.

I am very indebted to Mrs. J.R. Stewart for having sent me a copy of her late husband's "Corpus of Cypriot Artifacts. The Metal Objects" without which my chapter on metallurgy would have been far less complete.

I am equally grateful to Professor R.F. Tylecote who read this chapter, discussed it with me, and suggested a number of amendments.

The computer analysis of the sherd material, an important contribution to our understanding of the Phaneromeni ceramic sequence, distribution of shapes and relative chronology of the region, would have been impossible without the assistance and support of Dr. I. Graham.

My research has greatly benefitted from verbal or written communications with Dr. R.S. Merrillees, Professor J.N. Coldstream, Dr. H.W. Catling, Dr. E.C. Herscher, Professor J.B. Hennessy, Dr. V. Karageorghis, Dr. A. Walker, Dr. T. Kendal, Dr. I.A. Todd, Dr. E.J. Peltenberg, Professor G. Nobis, Mr. J. Watson, Dr. U. Zwicker, Ms. J. Hansen, Mr. J. Hanson, Dr. J.A. Gifford and Professor P. Astrom, who generously provided me with offprints.

My gratitude goes to the staff of the Institute of Archaeology Library, who made research there such a pleasure. Miss H. Bell the Librarian, was kind enough to provide, on occasion, references unavailable in Cyprus.

A special debt of thanks is owed to my friend Warrant Officer H.C. Heywood, RAF, for reading the first drafts and making suggestions. Whether washing pottery or rechecking tomb measurements he was always an enthusiastic assistant. To Dr. W. Walker who read the first draft of Chapter VI, "Bronze Age Settlement Patterns in Southwest Cyprus" I am grateful for a number of pertinent comments.

I am obliged to Mrs. D. Whittingham, Mrs. L. Holmes and Jane Greene for their assistance in typing and proof-reading the final versions of the text.

Last, but certainly not least, I wish to thank my wife Laina, who, in order to bring up our family, cast aside any thoughts of pursuing an intended archaeological career whilst this thesis was in progress. She is responsible for the map of Cyprus and several of the drawings; but my real debt towards her is for the support and understanding which facilitated the completion of this study. Words are inadequate to express the importance of her presence to me.

INTRODUCTION

Probably the least understood phase in the history of Cyprus is the Middle Bronze Age, and nowhere is it more obscure than to the south of the Troodos Mountains. Indeed, to many[1], there is little reason for the existence of a "Middle" phase, which would accordingly be partitioned between the better documented Early and Late Bronze Ages[2]. The primary cause of our lack of knowledge and understanding of the Middle Cypriot is the heavy reliance on funerary material[3], a situation which is further exacerbated in the south by a lack of systematic archaeological surveys. In "Patterns of Settlement in Bronze Age Cyprus", Catling went so far as to suggest that the southern region suffered a depopulation in favour of the centre and eastern parts of the island.

With such questions in mind, Dr. J.R. Carpenter and I undertook the excavation of the settlement-cemetery complex of Episkopi Phaneromeni, reputedly of Early and Middle Cypriot date. We hoped to establish a viable ceramic typology; a firm understanding of the lithic metal and terracotta assemblages, which would help fill in the cultural sequence between Chalcolithic II and Late Cypriot II.

Phaneromeni, as it turns out, has at least 2 main periods characterised by an eroded Middle Cypriot settlement (Area G), followed by more extensive occupation in the Late Cypriot IA (Areas A and J). Although undisturbed Middle Cypriot burials were quickly located, the Late Cypriot IA cemetery proved more elusive and no tombs of this period were found.

The purpose of the thesis is to study the culture of the living, since the social and cultural history of the Middle Cypriot is

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1. Catling 1966:165-6; Baurain 1978:21,98. 2. We are only well informed of the E.C. pottery sequence north of the Troodos mountains. No settlements of this period have yet been excavated. 3. This picture is changing rapidly with the information provided by the new Cornell University excavations at Alambra.

basically reduced to an interpretation of funerary deposits from the northern half of the island. Our first task will be to investigate the basic framework of the society we are proposing to study, which in concrete terms may be translated into architectural traditions. A detailed description of the structures and their contents will be found in Chapter I.

The Phaneromeni settlements were expected to yield large amounts of pottery, but the sheer volume of utilitarian stone objects seemed out of keeping with our accepted view of the Cypriot Bronze Age. It soon became obvious that the lithic material - excluding chipped stone - could not be accommodated satisfactorily within the existing typologies, which proved generally inconsistent and oversimplified. Chapter II proposes a new typology for non-chipped stone lithic artifacts. The typology was established in 1976 after the second season of excavations and its viability was tested with the finds from the following seasons and the K.S.U. survey of 1978.

Metal objects, unfortunately, were rare, and in order to increase the body of comparative material, the finds from the Middle Cypriot Cemetery C are discussed with those from Settlement A[1], in Chapter III.

The extractive and smelting technologies of copper are attracting much attention at present, and Cyprus has a key role to play in this field. In view of the importance of any new metal finds, let alone those which have been analysed, we have attempted to establish the position of the Phaneromeni metal types within the largely unpublished southern industry, which in turn is incorporated in the framework of Cypriot Bronze Age metallurgy.

The terracotta assemblage is sufficiently large and varied to warrant the establishment of a separate typology after a detailed

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1. No metal was discovered in Areas G and J.

study of each piece in Chapter IV.

Through a comparative study of the pottery the relative date of the structures in Areas A, G and J will be suggested[1]. I shall not attempt a formal investigation of the evolution of shapes, wares and decoration, but will limit Chapter V to the broad lines of the typological development from Middle Cypriot to Late Cypriot I A[2].

Elaboration of the well organised typologies for the most common artifacts occurring at Phaneromeni will provide the criteria for the interpretation and dating of other sites in the district. The goals of the Kent State University archaeological survey in the Episkopi region, outlined in Chapter VI, were to collect the maximum of topical and archaeological information in order to establish a Bronze Age pattern of settlement for the area under study. This, it is hoped, will complement the data previously assembled by Dr. H.W. Catling[3], and broaden our understanding of those dark centuries between 2000 and 1600 B.C.

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1. Dr. E.C. Herscher was the pottery expert of the Phaneromeni excavation Her broad knowledge of Cypriot Bronze Age pottery was vital to our initial understanding of the Phaneromeni ceramic assemblage. The typology adopted at Phaneromeni is very much a joint effort of Herscher and myself.
2. An exhaustive study of the pottery is not included in this work primarily because the Cemetery C material is the subject of a doctoral dissertation by L. Mc Laurin, whilst that from Settlement A is being published by Dr. E.C. Herscher. 3. Catling 1963.

I THE ARCHITECTURAL REMAINS AT EPISKOPI PHANEROMENI

The locality of Phaneromeni on the banks of the Kouris river, lies about 500m. east of Episkopi Village, "La Piskopie" of the Middle Ages[1]. The toponym may be translated from Greek as "Revealed", which was probably the name given to the Byzantine chapel overlooking the river at this spot.

The site is delimited on the west and northwest by the main Limassol Paphos road, on the east by the Kouris, and on the south by a cart track leading from Episkopi to Erimi. The low hill of Bamboula is 500m. to the northwest, and the river mouth 2.500m. further south.

Bronze Age occupational debris covers the south-sloping terrace of late Plieocene to early Pleistocene piedmont deposits[2], which have been completely eroded in this area. Additional changes in the topography were caused by extensive levelling and terracing, carried out at an undetermined date. In its present state, the site may be sub-divided into 4 areas: a low hill (Area G) narrowing to a long havara[3] ridge (Areas C and F) where the Phaneromeni chapel once stood, a series of low terraced fields (Area H and J)[4], and finally a broad semi-circular expanse of colluvium (Areas A and D). The present vegetation consists of a vineyard west of Area A and an irregular scatter of carob and olive, intercropped with cereals.

The earliest reference to Phaneromeni as a site is by Murray and Smith[5] who published a gourd juglet of North Coast style. It is mentioned again by Gjerstad in the following terms "On the rocky ground towards the sea, to the south of the highroad, the necropolis continues, at this site occupied by tombs from the Early and Middle Bronze Ages"[6]. Dikaios discussed 2 vases from a "...site situated some 100 yards south of the Kouris bridge. To the north of the necropolis is the site of

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1. Gunnice 1936:227; Goodwin 1977:213. 2. I am obliged to Dr. John Gifford for this information. 3. For a definition of havara cf. Ch. VI. 4. The necropolis in Area J is now eroded of top soil in many places. 5. Murray and Smith 1900:73, fig.125. 6. Gjerstad 1926:15.

the settlement which I had noticed before the tombs were dug out by the villagers"[1]. The necropolis is obviously Cemetery C, and the settlement corresponds to Area G. This is the first specific reference to an occupation site at Phaneromeni, although the locality is not mentioned by name. Scientific investigation of the area was carried out by Professor Saul S. Weinberg[2] in 1955, who 4 years earlier had noticed[3] large quantities of R.P. pottery in Area G, brought to the surface by deep ploughing. Weinberg's Missouri-Cyprus Expedition opened tombs in Cemetery C and sank 6 trial trenches throughout the site[4], several of which provided evidence for occupation of supposed E.C. date.

In 1975 the Kent State University Expedition to Episkopi Phanermeni initiated a 4 year campaign of excavations. Trial trenches (see fig.3) were dug in different areas of the site in order to determine the extent of occupation. Most were sterile and suggest that only part of the site was ever built on, whilst other areas have lost all architectural remains to post B.A. agricultural activity.

For the purposes of the present study, and the light it might shed on the B.A. of southern Cyprus, it was felt necessary to undertake a thorough description of the architectural remains and associated finds excavated in Areas A and G, in order to provide an impression of the prevailing lifestyle of the region during the 1st half of the 2nd millennium B.C. The K.S.U. survey located many sites contemporary with the settlements in Areas A and G, and we may assume that, notwithstanding minor geographical variations, the basic architectural arrangements and way of life were similar elsewhere during the period under discussion.

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1. Dikaios 1935:23. 2. Weinberg 1956. 3. Op. cit. p.116. 4. These trenches are labelled as Tr. 1-6 on Fig. 3. Tr. 6 falls within Area A.

Through a careful study of the contents of the structures at Phaneromeni, we may attempt to extrapolate the activities of the inhabitants, and determine whether any tendancy towards specialisation can be detected here. This, in turn, may lead to similar statements for other sites recorded by the survey.

THE MIDDLE CYPRIOT SETTLEMENT IN AREA G

The M.C. settlement in Area G was established on a low hill with a fine commanding view of the Kouris river valley, the surrounding countryside, Akrotiri peninsula and the sea. A short distance to the south, the dromoi[1] of Cemetery C were scattered over an irregular havara outcrop which borders the slope that was later occupied by the L.C.IA settlement.

It was hoped that Area G would provide architectural remains contemporary with the cemetery below, and indeed the surface scatter of sherds and artifacts - including gaming stones - was suggestive of heavy occupation. Unfortunately, these hopes were premature, as erosion, the Cypriot archaeologist's worst enemy, had been at work once again. Of the 14 trial trenches sunk on and around the hill top[2], only G4 yielded any interpretable architecture.

The trench measured 8 x 9 m. In the northeast corner sterile terra rossa[3] was reached 29 cm. below the present surface, and elsewhere the deposit was 20 cm. deeper at the most. The best preserved feature was wall A (W-A), 2 courses high and 75 cm. wide, built of riverstones and rough blocks of havara. It followed a northwest - southeasterly alignment, and was joined to the east by W-B, of which only a double row of riverstones remains. To the north of W-A an elongated stretch of tumble, known as W-C followed the same general

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1. Cf. Intro.Ch.6.2. The trial trenches measured from 1 x 1 m. to 8 x 9 m. (G4). Only the 6 larger trenches are indicated on the Site Plan, fig. 3
3. Cf. Elliott and Dutton 1962.

bearing and was probably part of the same structure. Several fragments of sun-dried mud brick were recovered from amongst the debris - notably in S271[1] - which proves that the stone foundations once supported a superstructure of this material.

These poorly preserved walls determined a series of areas, rich in occupational debris, though disturbed by the plough. Here and there small areas of the compacted havara and mud floor could be traced, but in most instances the finds lay directly on the sterile terra rossa. The lack of intentionally laid or naturally compacted floors is a characteristic of the site, and will be discussed fully in connection with Settlement A.

Feature 1 (Ft.1) was an approximately oval conglomeration of mud-brick fragments, pisé and lime plaster containing the remnants of a smashed R.P.III Mottled amphora. This structure perhaps served as a mud brick pot support, and the use of insoluable lime plaster suggests the vessel contained a liquid. All M.B.A. pottery is permeable, and if a water container were put in direct contact with sun dried brick, it would soon be covered with a thick mud deposit.

To the north of Ft. 1 were the remains of a storage jar (Ft.2) and a well used mortar (Ft.3) partially sunk into the floor. The main concentration of finds was in the relatively undisturbed northwest corner formed by W-A and W-B. By far the most important of these was S244, a bifacial gaming stone. It lay spiral side up, apparently in situ, alongside 2 havara slabs of undetermined usage. Several handstones were discovered between the game and W-B.

Further north, on the opposite side of the wall, the habitation surface yielded a number of large objects but few small finds. Ft. 5 in the middle of Area 2 is a stone with a shallow pecked depression approximately 18 cm. in diameter and 2 cm. deep[2]. It closely resembles

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1. This piece of mud brick measured 12 x 13 x 8 cm. 2. See in this connection Rooms 10, 13 and 28 at Settlement A.

post supports used until recently in traditional Cypriot architecture. If it is correctly interpreted, this area must have been roofed. Other finds include a small andesite bowl (S251), a Type 3 mortar (S252) and 2 broken Episkopi Ware bowls stored one inside the other (Ft.4).

Few finds were made in Area 3, west of W-A and W-C. The large Type 1 mortar (S268) in the northwest corner of the trench suggests that smaller objects have probably been scattered by the plough. Adjoining the southern limit of W-A there is an intriguing arrangement (Ft.6) of querns and riverstones forming a semi-circle around 2 large havara slabs. These lay obliquely against W-A, in an approximately horizontal position, flush with the habitation surface. Although the querns face right side up, they would have been difficult to use for grinding in their present position. Presumably they served a structural role as part of Ft. 6.

The evidence would suggest that the buildings in Area G were abandoned with many objects left in situ. The lack of finds in certain areas and fragmentary nature of the walls is apparently due to recent ploughing, as correctly noted by Weinberg in 1955[1].

With such limited architectural remains at our disposal it is impossible to draw any meaningful comparisons with other Cypriot sites. The small finds all belong to types represented at the later Settlement A, and are therefore devoid of a narrow chronological significance. They will be discussed together with the L.C.IA material,

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1. Weinberg 1956:118.

THE LATE CYPRIOT IA SETTLEMENT IN AREA A

Settlement A was built on a gentle southward facing slope, 150 metres from the east bank of the Kouris, and about 50 metres above the present mean sea level. The position has few natural advantages, save an easy access to water, and protection against flooding by the high havara ridge which confines the river to its bed. The sea view is blocked by a hill, and the settlement has no vantage point from which to survey the surrounding countryside; indeed, the general impression is that the inhabitants were either indifferent to natural features or intent on choosing an inconspicuous location (See fig. 3).

The structures were set on a fine, red, wind-blown sand slightly concreted in places, which forms a reasonably sound and well drained platform.

After abandonment of the settlement towards the end of L.C.IA, little attention was paid to the site for the remainder of the B.A., as suggested by the lack of L.C. pottery. Had the area been under cultivation, the occasional L.C. vessel would surely have got broken in the vicinity and mixed with the topsoil. Episkopi Bamboula is only 600 m. away to the north, and it would seem that the Phaneromeni ruins, probably quite visible, were purposefully avoided.

In the Iron Age the situation is quite different. A few Cypro-Geometric sherds are present, followed by large quantities of Archaic and later material which usually contaminates the L.C.1A occupational debris. This aspect of the site is unfortunate, and only rarely was a pure L.C.1A deposit found. The architectural remains are poorly preserved because of post-B.A. agricultural activity and erosion. In several instances (Walls C and G) the top courses of stones were repeatedly scarred by metal - presumably iron - plough shares. Concurrently, while the ground level at the centre of the site remained fairly constant, rapid accumulation of soil took place on the east and west perimeters. Room 7, for example, is 1.70 m. below the present surface, yet the

architecture is no better preserved and the admixture of Iron Age and Byzantine sherds was the same here, as elsewhere. The same picture emerged from Operation A26, sunk 2.20 m. to virgin soil east of Area 26. No L.C.1A remains were found, and Iron Age pottery extended down to virgin soil. The stratigraphy suggests that rapid, heavy erosion took place in the Iron Age, obliterating many of the earlier remains. Reasons for this course of events are unknown, though local deforestation and increasingly intensive agriculture are probable causes.

These depredations resulted in walls, usually only one to two courses high, often beginning and ending nowhere (W-Y and W-O). From a study of the remaining architectural elements, however, it is possible to distinguish a total of 20 rooms and courtyards and several open spaces, divided into two units by an alley way (Cf. figs. 7,8,5).

No single structure stands out by its size or nature of its appointments, and there is no evidence for a defensive wall. Even a cursory glance at the plan (fig. 5) or aerial photographs (fig. 7) conveys the impression of an unpretentious community established near the most important perennial water supply in the region.

Individual architectural features were often difficult to distinguish. For example, there are only 6 undisputed doorways, and elsewhere the lack of <u>in situ</u> pivot stones makes their exact location open to question. The situation is further aggravated by the complete absence of floors. Even if the inhabitants did not trouble to lay down mud, pebble, or plaster floors, it is unclear why the sandy habitation surfaces did not automatically harden and become compact from use. Perhaps the answer lies in the nature of the soil, which being sandy is incapable of forming a hard, dense surface. A short period of occupation of the site might be another explanation. A few areas

of hard packed debris certainly were floors, but in each case they soon petered out. Typically, the brown top-soil would grade into the lighter occupational debris, well above the ash and smashed pottery laying scattered on the habitation surface, which in turn imperceptibly merged with the red sterile soil. Only upon penetrating this last level could the excavator be certain of having reached the habitation surface.

The method of building was simple: walls were made of a double row of riverstones and a few havara blocks. The central core would be packed with fist-sized fragments of havara and a few pebbles, the whole bonded in mud. Rough coursing prevailed throughout the site, and was preserved to a maximum of 0.76 m. with 4 courses (W-C of Room 3). The average size of building stones is 0.3 x 0.2 m. with a resulting wall thickness of 0.60 to 0.70 m. Foundation trenches were not in use.

At varying heights[1] the building material was changed to sun-dried mud brick or pisé. A few accidentally fired brick fragments from different areas of the site prove that the use of this material was widespread within the community. The bricks measure 10 cm. wide by 7 cm. thick, but the original length remains unknown.

Most traditional houses in the Episkopi region have at least the lower 0.50 m. of their walls built of stone with a mud-brick superstructure supporting the beams and flat roofs. There is good reason for the stone foundations, which apart from providing a sound base for the mud-bricks above, also prevent erosion caused by rising damp. Experimental archaeology has shown[2] that the base of wattle and daub walls are severely eroded after 3 or 4 years by rising damp up to 0.50m. above the base, if stone foundations are not used. Rain splatter in the winter is another reason for stone foundations.

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1. W-AD of Room 28 is the only wall at the Settlement which retains part of its mud superstructure. In this instance the stone foundations are 50 cm. high. (cf. p. 30). 2. Coles 1976:12.

There is good reason to believe, as we shall see, that the structures of B.A. Phaneromeni were built according to the same basic principles.

The description of all structures and areas is generally in the following order: location or room or area; description of walls, features and finds. At a site where parallel wall faces and right angles are unknown, all measurements should be considered as average, unless otherwise stated.

The terminology used in describing the ceramic, lithic, metal and terracotta objects from Settlement A and Area G is fully discussed in the respective chapters dealing with each category.

All rooms and areas are numbered in Arabic numerals, and in order to eliminate confusion all walls have been assigned letters (cf. fig.5) e.g. Wall B = W-B. The whole of Settlement A is shown on the site plan, fig. 5 and in the aerial photographs of fig. 7,therefore it was not felt necessary to refer specifically to these figures in the detailed description of each area and room.

Room 1

This room lies on the eroded south-eastern edge of the settlement, above the cart-track. Its side walls W-D and W-E were very badly damaged, indeed, all that remained of W-D was a single row of stones two courses high. The west wall W-C, stands one course high in Room 1, but six in rooms 2 and 3 which are at a lower level. The same observation is true of W-E in relation to Room 2 where 3 courses remain. The ground plan seems unusually long and narrow, measuring at least 4.90 m. by a maximum of 1.20 m., although these measurements could be misleading due to the fragmentary state of the walls. No objects were recovered from Room 1 and its function remains unknown.

Room 2

Room 2 (figs. 8:1; 9:5) to the north and east of that discussed above has suffered from erosion and post Bronze Age activities. Only threee sides remain, formed on the south by W-E, 75 cm. wide and 3 courses high; on the west by W-C 60 cm. wide with six courses remaining (70 cm. high) making this the best preserved wall at Phaneromeni. Little is left of W-F to the north, 60 cm. wide and up to three courses high. With a preserved width of 4 to 4.5 m. and a conjectured length of at least 7.10 m., Room 2 is one of the largest in the settlement. Due to the sloping terrain it was apparently deemed necessary to cut into the bank to provide a horizontal floor, and the north side of W-F is constructed against the north face of the cut. Approximately half way along W-E, a buttress? 50 cm. wide by 48 cm. long, probably supported a beam spanning the room. The beam was probably reinforced at its mid-point by a post set on a large flat stone near the middle of the room. Unfortunately there is no corresponding buttress in the opposite wall to lend support for this interpretation. No doorways are preserved.

As is frequently the case at Phaneromeni, the floor level in the middle of the Room 2 is anywhere from 10 to 30 cm. below the lowest course of stone foundations. This implies that the habitation surface curves sharply upwards as it approaches the wall face (see a detailed discussion of this phenomenon in connection with Room 8).

The room contained four partially free-standing lime-plaster bins, set on large flat or hollowed stones. There are at least 31[1] such features distributed throughout the settlement (See Table 1). Out of the 17 best preserved rooms and courtyards 10 have one or more plaster bins sunk into the floor. From the remaining evidence their positions would appear to be random in corners, near walls, or centrally placed and the size and function of the structure is of no consequence.

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1. Three additional poorly preserved examples are questionable.

Three bins are reinforced at the base with small riverstones (Cf. Fig. 9:3 no. 28); ten are built on hollowed mortar-like stones (Cf. fig. 9:1, and 3), nine on flat slabs with no signs of wear (Cf. fig. 9:2), and two on large convex river-pebbles. Seven have carefully rounded bases without any stone reinforcement. All are at least partially sunk below floor level, but often erosion makes it difficult to determine whether they ended flush with the latter or were free-standing, like 11, 12 and 24. There is little variation in size and shape, with the inner diameter at the base varying from 11 to 23 cm., and the average angle of the sides set between 25 and 30 degrees. The upper diameter is, naturally, dependant on the preserved height. Number 20 is 28 cm. high, measuring 44 cm. across, and No. 7, still intact, is 14 cm. high and 36 wide at the rim.

The exact function of these features remains a mystery. All were full of occupational debris, indistinguishable from that surrounding them. If a few had served as pot-stands,[1] an unlikely attribution for those with stone bases, one might expect to find at least part of the vessel smashed <u>in situ</u>. From all appearances the bins were empty at the time of destruction. The inner surface of three examples are reddened from burning, but contained no ash, which suggests the hardening properties of fire were sometimes part of the manufacturing process. Bin 1 had a distinct fire reddened line, 0.4 cm. thick, on the side of its first outer lining. Subsequently it had been relined twice, but not refired. Bins with stones might have served as mortars for grinding non-comestible substances, since quantities of plaster would invariably get eroded from the sides. This last is supported by the smooth convex depressions in 10 stones, and the discovery of a rubber-pounder at the foot of No.11. It is unlikely, though not impossible, that these had

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1. Cf. Feature 1 in Area G4, which apart from containing the remains of a smashed vessel, was of substantially different construction.

served as mortars prior to their association with the bins. However, it should be remembered that many stones show no signs of wear, and though evidence is lacking, some of the bins could have served as pot-stands or storage pits.

Room 2 produced more finds than any other in the Settlement, mostly concentrated in the western half. An Iron Age cart track had disturbed the eastern projection of the room, as evidenced by the hard packed soil and two parallel ruts containing, amongst other things, some iron fragments. The thick destruction layer revealed 10 handstones, seven Type 2 saddle querns, two mortars, a circular work surface(?) 3 thin limestone slabs possibly shelves or potstands nine worked flints and many flakes. There were also three fragmentary griddles, three terra-cotta spindle whorls a needle and a fragment of copper sheet. The work surface and two mortars set near the east wall, were seemingly undisturbed by the looters. To this list should be added 136 "basin" fragments. These belong to a category distinct from our ceramic typology. Basins vary greatly in size and quality, and unfortunately it has not been possible to reconstruct a complete, or near complete example. Thus we have little idea as to their overall size and shape. Most are of heavy grit-tempered fabric, much softer and coarser than that chosen for pithoi; a few are slipped and burnished. The friable nature of the clay probably accounts for their bad state of preservation. Straight sided with rounded rim and flat base, these tray-like objects were probably oval in shape, since we have straight and curved sections of rim, but no corners. There is some evidence of burning on the rough underside which suggests an association with fire, and probably the preparation of food.

Stratified remains of basins come from every room (over 4000were recorded) but although significant variations in their number exist from one area to the next, a pattern, has failed to emerge. Their distribution fails to tally with that of other domestic utensils.

Fragments from individual pots were spread over a large area. If crushed by the collapsing roof they would have been smothered, thereby excluding the possibility of a wide sherd scatter. This fact, coupled with the pattern of burnt sherds after restoration and the haphazard distribution of other finds, proves without doubt that looting and breakage took place before the conflagration. Both the appointments and finds from Room 2 are strongly suggestive of intensive domestic activity.

Room 3 (figs. 8:1, 10:1)

Adjoining 1 and 2 to the west is Room 3, measuring about 6.40 m. by 4 m. The north wall, W-F, no better preserved than in room 2 remains a semi-retaining wall in order to provide a horizontal floor. The northernmost 2.20 m. of W-A on the west side is very fragmentary; but approaching W-B to the south it stands five courses high (63 cm.) and 84 cm. wide. The point of intersection between W-AB and W-A is barely preserved, but to the east W-AB stands three courses high and 60 cm. wide, stopping 1.06 m. short of W-C. The resulting doorway is the only means of access into the room. As no pivot stone was discovered in position here, or elsewhere at Phaneromeni, this suggests the use of wooden sockets for hinges. A stone with two shallow depressions showing the characteristic wear patterns of concentric striations (S351) associated with pivot stones lay upside down in the middle of Room 10, but it was the only example from the site. Pivot stones were in common use in Cyprus during the M.C., Dhali Kafkallia, produced several fine examples[1], supplemented by those recorded on the K.S.U. site survey[2].

The ash layer was particularly thick in this room, but we do not know whether it should be attributed to the lack of disturbance and erosion post destruction or to a greater quantity of combustible material

1. Overbeck and Swiny 1972:28. 2. See Chapter VI, Table 7 especially.

here or on the roof. The former explanation seems most likely.

Three plaster bins with stone bases and five pits varying from 20 to 70 cm. in diameter were found. The contents were a mixture of ash and soil, identical to the surrounding fill and gave no clue as to their function, even after flotation. These pits, unique at Phaneromeni, were not lined with mud or lime plaster, surely a prerequisite for food storage.

The northwest corner was occupied by a shallow irregular depression, with inside it a rough semi-circle of five stones which might have propped up the large pithos that once stood in the corner. The depression was necessary to facilitate access to the contents. Since the base of the pithos was not countersunk, in other words embedded in the floor (a usual practice at the Settlement) it was easier to topple and smash across the entire length of the room, as suggested above.

The small finds, evenly distributed over the whole area, comprised 8 handstones, 8 worked flints, 4 terracotta spindle whorls, 2 griddles a copper khol-stick?, 3 needles and 3 additional copper fragments. At least 2 and probably 3 pithoi, a dipper juglet, half a composite bowl (see below) and large quantities of sherds came from the room. One pithos stood just inside the door, where evidence of burning was particularly fierce, and might have contained oil. Another feature of note is that, although a single mortar was found, there were 2 grinder pounders, and 2 pounders. The supplementary handstones were probably used in connection with the plaster bins. Considering the rich deposit in Room 3 there were surprisingly few basin fragments: 43 in all.

The diversity and nature of the finds - especially those of a botanical nature - suggests a mixed domestic function with emphasis on storage and various manufacturing activities. No hearth was located,

presumably none existed, and it is therefore unlikely that foodstuffs were prepared here. As we shall see, Rooms 8, 13, 19, 25 and 29 had circular burnt areas on the floor which were interpreted as fireplaces, whereas 17 19 and 30 had regular hearths. Elsewhere, in the absence of the latter, it is impossible to detect fireplaces on the blackened ash covered floors. This might explain the lack of recognised hearths in other rooms (though not Room 3) where the abundance of griddles, basin fragments and cooking pots clearly indicated that foodstuffs were being prepared.

In the following group, Room 4, Areas 5, 6, 23, 24, we have a series of structures so incomplete that little can be surmised of their original layout. In addition to the fragmentary architecture, any functional attributions are inhibited by a general paucity of finds.

Area 23

The doorway in the south wall of Room 3 leads to area 23. Walls W-A and W-C, now ending almost flush with W-B, certainly continued southwards to form what was once a room. A perforated stone loom-weight?, a worked fragment of serpentine, 3 flints, a rare terracotta bead, one pithos embedded in the floor of the northwest corner, a WP IV jug (P139) and a RPIV cooking pot (P140) complete the list of finds.

Room 4 (fig. 8:1)

This room is located to the west of Room 3, with which it shares most of W-A. Its north wall, theoretically the western section of W-F, is completely missing, including any telltale scatter of tumble which might originally have formed part of a wall. This arrangement suggests Room 4 might have been a courtyard open to the alley that divided the settlement in two. However, in view of the fact that all other rooms back onto, and do not communicate with the alley, this interpretation seems unlikely. Room 4 is 45 cm. higher than 3 which

could account for its bad state of preservation and dearth of small finds. The west wall, W-AB, is problematic: one course high and 80 cm. wide it commences at 1.04 m. from the south wall W-AA, leaving sufficient space for entry to Room 6. W-AB is only 2.30 m. long, and, as preserved, makes little architectural sense, which emphasises the lack of remains in the north half of Room 4. W-AA bonded with W-A and destroyed at the western end, is one course high and 80 cm. wide. The south face of the wall in Area 24 is two to three courses high, as dictated by the sloping terrain.

Presuming this area is a room and not a courtyard, it would have measured 5.5 m. x 3.3 m. A rubbing stone, a pecker, a quern, a stone loom weight? a terracotta spindle whorl, and five flints conclude the list of small finds. None of the objects argue against a domestic function similar to that of the quarters already described.

Area 24

Delimited to the north and east by W-AA and W-A, this area was destroyed by the cart track to the south and badly eroded to the west. Built on almost the same level as Room 3 and Area 23, it is 30 cm. lower than Room 4. The southern extention of W-A, 1.10 m. long, is set on occupational debris (bone, ash, sherds) and is, with W-1, the only wall of the settlement not built on natural soil. The few sherds recovered are diagnostic of the Area A ceramic assemblage, and the rebuilding or alteration was obviously done during the short period of occupation of the Settlement.

In the northeast corner of 24 a semi-circular wall 1.60 m. long, 50 cm. wide and five courses high, is stratigraphically earlier than the rebuilt section of W-A, but contemporary and bonded with W-AA. Though points of comparison exist between this feature and W-AT off Room 19, its function remains enigmatic. Did it support a mud brick superstructure to form a closet, or was it a bench? In order to obtain a horizontal floor for the north side of Area 24, the bank was cut into

and here the foundations of W-AA start 36 cm. above those of the closet or bench. To the west, the south face of W-AA abuts against a single row of stones 1.70 m. long, 28 cm. wide, 2 courses high, probably a bench resembling those of Rooms 10, 28 and 19.

Two flints and a needle lay among the top course of stones of the semi-circular wall, but elsewhere, as might be expected, finds were rare. A pounder, 5 worked peices of flint, griddle fragments, a terracotta spindle whorl and another needle complete the list.

Areas 5 and 6

These areas are so fragmentary they call for little comment. Both are separated from Room 4 by W-AB and from 7a by the short stretch of W-AC, 50 cm. wide and two courses high. A single row of stones is all that remains of the dividing wall between Areas 5 and 6. No objects were found.

Room 7 (figs. 8:1, 2)

On the north side of Areas 5 and 6, we have what is now the triangular shaped Room 7. To the north W-AL borders on the alley, mostly one course high and 70 cm. wide. Approximately in the middle of the wall there is a gap of 20 cm. somewhat resembling a drain although the slope of the ground in this area would effectively cause the back-up of any liquid wastes. W-AD on the west side is well preserved in places and varies from one to 4 courses in height. With an average width of 85 cm. it is of stouter construction than most, which might be explained by the nature of the terrain. In contrast with Rooms 2 and 3 which were set into the sloping bank, here it was decided to build a retaining wall (W-AD) and then back-fill until a sufficiently large horizontal surface had been created. At this point a side wall (W-AL), running at right-angles to the bank, was built out onto the terrace, past its point of intersection with W-AD.

The southern wall of Room 7 is problematic. At 5 m. from the northwest corner, the flimsy remains of W-AE 50 cm. wide and one course high abutt W-AD at right angles. 1.65 m. from this point the wall stops short of a large tethering stone (60x50 cm.) which has a rough, circular depression, 30 cm. across, cut into the upper face. After an interval of 80 cm. the wall continues for 1.40 m. following a slightly different bearing. The arrangement of the stone is similar to that of the central post support in Room 16. However, it is difficult to see the need for a support against a wall, even if there had once been a gap,perhaps a disused doorway, at this point.

The east wall, where the entrance must have been, is missing; indeed it might never have existed as the last stone of W-AL, is larger than most, and thereby suggests that the wall might have terminated here. Alternatively, it should be remembered that this part of the site, Areas 5, 6, and the north end of Room 4 is badly eroded and a whole wall could quite easily have disappeared without leaving a trace. In view of this, the original plan of Room 7, whether subrectangular or triangular, is open to question, though the latter shape seems most likely. Its present dimensions are: west wall 5 m.; north wall 5.30 m.; south wall 4 m.; with a gap on the east side of 2.85 m.

Surprisingly few artifacts were found: one perforated hammer (S182), a rubber pounder, a pounder, a stone weight possibly a loom weight and the usual flints, here numbering 5. Terracottas are represented by a spindle whorl and 3 spherical beads found together in the southwest corner. Four griddles and 98 fragments of basin attest to the preparation of food, and 3 pithoi smashed <u>in situ</u> would have enabled the storage of large amounts of produce, presumably foodstuffs. Many sherds were found, and a few were reminiscent of Base-Ring ware. The 3 restored vessels, namely a fine Episkopi Ware amphoriskos, a spouted bowl, a flask and a WPIII miniature bowl, indicate the variety of ceramic

types here. A copper nail was the only metal object found.

No indication of a specific function for Room 7 is suggested by its finds. The griddles and basin fragments, as well as the handstones and spindle whorl, are all indicative of the usual domestic activities, with a slight emphasis on storage. All the larger rooms contained at least one pithos, but 3 in this relatively small area is unusual.

The discovery of one small crucible fragment, complete with copper nodules (A394), comes as a surprise. Though ash was plentiful, as elsewhere, it is apparently the product of destruction and not of metallurgical activity. Furthermore, the room contained no features, hearthes, benches etc. usually associated with smelting. Most probably the crucible is intrusive, originating from 21, the open area north of Room 7, which also produced a lump of slag from secondary smelting and another piece of crucible (TC54).

Room 7a

To the south of Room 7 and separated from the latter by W-AE is 7a, another small triangular room. On the west side it borders on W-AD, and the east is defined by the remains of W-AC. This last probably ran up to within a metre of W-AD, so providing a doorway. Whether it extended northeast in order to close Room 7 is not known.

The reconstructed dimensions of 7a are 2.30 m. north-south, 3.80 m. east-west, and 3.10 m. southwest-northeast.

For all its small size the room contained a good selection of objects: a rubber pounder lay at the foot of the bin in which it was probably used; in the northeast corner opposite the bin, there once stood a pithos with 2 perforated stone loom weights and a quern nearby. Elsewhere were found 4 spindle whorls, 3 juglets, a griddle fragment, and a quern. Only a handful of pieces of basin are recorded, and some of these might be intrusive from Area 6 nearby.

From the contents of Room 7a it would seem that there was some emphasis on weaving and spinning, if the interpretation of the perforated stones as loom weights is correct.

Rooms 27, 28 and 28a (fig. 8:1)

The 3 rooms at the southwest corner of the settlement, defined by W-AD to the east and W-AL to the north, were only partially cleared due to a lack of space. The excavation could not be extended westwards because of a vineyard in this area.

Little can be surmised as to the original arrangement of Room 27, for only a corner is preserved. A good ash deposit covered the habitation surface to the north against W-AP, but it petered out before reaching the edge of the bank. Two well preserved lime bins and a mortar are the only funishings, and of the other finds, namely a spindle whorl, a zenet, and a fragmentary quern, none call for comment.

Room 28 to the north of 27, was potentially one of the richest and best preserved in the settlement. A heavy deposit of black ash from 20 to 30 cm. thick, was spread over the whole area. This in turn, was covered with tumble which to some extent protected the lower levels from disturbance. The cause of the ash is not clear. It either originated from the burning of the contents of the room, or from the roofing materials. Since the room does not appear to have been used in the storage of wood or fodder, the latter explanation seems most likely.

The only well preserved wall of Room 28 is W-AD, here 90 cm. wide and a maximum of 5 courses high. In the middle, a short stretch of the original mud mortar, 20 cm. thick, was preserved on top of the stone foundations, and for the first and only time at Phaneromeni we can judge their original height: in this instance 50 cm. In passing, a parallel might be drawn with the traditional building methods in use at Episkopi Village, where the height of stone foundations varies from

house to house, and in the case of houses built on a slope it might vary from one wall to the next. Such was apparently the custom at Phaneromeni where, it will be remembered, the foundations of W-C in Room 2 extend at least 76 cm. above ground level, somewhat higher than those of W-AD.

A single row of stones, 30 cm. wide and 1-3 courses high, abutted the east wall of Room 28 for a distance of 2.90 m. north of W-AP. If plastered, this feature might have served as a bench for the storage of small objects, an interpretation supported by the discovery of an intact bench in Room 19 which stands 40 cm. high and 34 cm. wide.

W-AQ is a short, poorly preserved stump of wall on the north side of the room, 60 cm. wide, 2 courses high and 1.20 m. long it ends 15 cm. short of the west baulk, where it fails to show up in section. This would suggest the existence of a doorway connecting Rooms 28 and 28a, were it not for the presence of a stone with a lightly pecked circular area about 18 cm. across, possibly a post support[1], just in front of the opening. If the stone was <u>in situ</u>, like the large pithos standing nearby (P207), they would have effectively obstructed passage through the doorway, unless it was very wide. In view of this it seems preferable to view W-AQ as a buttress or partition.

For the small area excavated, Room 28 produced many objects, and it would appear that all were in their original positions. At least 8 vessels lay smashed on, or just above, the habitation surface. With these were found a <u>zenet</u>, 5 querns, 2 copper fragments, a perforated stone weight, a fragment of stone pithos lid, and a possible stone shelf or work surface. Two large Type 1 saddle querns sat in the northeast corner, and by the side of each was found a smaller Type 2 quern laying upside down, representing one of the rare instances of grouping at Phaneromeni. The evidence suggests both quern types were used conjunction, but exactly how is unclear since the Type 2 querns are too

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1. See below in connection with Rooms 10 and 13.

thin and difficult to hold if used as rubbing stones.

A pattern also emerges from the group of 3 large R.P.IV jugs and a R.P.IV spouted jug, apparently standing in a semi-circle around the perforated stone weight. The remaining objects were randomly scattered over the floor. When the large pithos (P207) was excavated down to the floor level, it appeared to have its base well embedded in the soil. Upon removal this assumption proved to be incorrect, as it had been broken in two prior to the conflagration and carefully set on the ground right side up! The contents consisted of a thick deposit of ash which had fallen through the wide mouth.

The room also provided support for our interpretation of events connected with the destruction of the site. From here came half of a small Episkopi Ware composite bowl, P217, the other half was found in Room 3 separated from Room 28 by an interval of 3 rooms or a minimum of 10 m. at the least. Unless the bowl had been broken before the conflagration, with each half kept in separate rooms, it proves how widely some objects were dispersed when the settlement was sacked.

The finds from Room 28 seem to indicate a general domestic function, with an emphasis on storage and grinding. Few basin fragments were recovered from the excavated area, which argues against the cooking of foodstuffs.

Room 28a, a narrow strip barely 90 cm. wide between W-AD and the west baulk, is characterised by a deep deposit of ash and two benches or shelves. Along the west face of W-AD was one such feature 32 cm. wide which intersected with a broader structure, 36 cm. wide, against the north side of W-AQ.

A layer of fine grey ash from 10 to 15 cm. thick covered the whole area. Other than sherds no finds were made.

With Room 28a we conclude the description of the complex south of Area 21 and the alley way. Its entity as one or more architectural

units is uncertain due to erosion along the southern perimeter of the site. In conclusion, all that can be said is that a series of at least 6 sub-rectangular and 2 triangular rooms bordered the southern side of a narrow street.

Room 8 (fig. 8:2)

Ironically, Room 8, one of the best preserved single units at Phaneromeni, is of a lighter and more careless construction than all others. It is also smaller than most, measuring 3.60 m. by 2.50 m. The southwest and northeast walls, W-G and W-I, 3 courses high and about 50 cm. wide, are not bonded into the more solidly constructed W-K, thus indicating that Room 8 was built after the adjoining rooms on the east side. A narrow doorway, 61 cm. wide, in the northwest corner leads out to Area 21. A pecking stone, 2 fragmentary querns, a mortar, and a spindle whorl were the only objects recovered. The absence of lime plaster bins and pithoi fragments may be indicative, but of what is not clear. The querns and mortar prove some substance was ground and pounded here, but it need not have been an aliment. Thirty six basin fragments do, however, suggest cooking. The quantity of ash was in keeping with rooms in other areas of the settlement.

In previously described rooms and areas the habitation surface covered with burnt debris was the natural sandy soil, but in Room 8 an earlier level, up to 40 cm. thick was interposed between the soil and the main period of occupation. With no clear internal stratification visible, this would not appear to be the result of a gradual accumulation of occupational debris. Quantities of riverstones and large pieces of basin were randomly interspersed with fine sandy-grey ash which lacked the diagnostic pockets of heavy black burning associated with the conflagration. All the objects recovered came from on,

of just above, the floor which suggests they were in the room prior to the depositing of ash, which seems to have been intentional, either to raise the floor level, or because Rooms 8 and 9a formed an open disused area suitable as a rubbish dump.

Level 2 runs under W-I up to W-AK (Cf. fig. 8:2) in the northeast, which, as we shall see in connection with Room 9, was not in use during the last phase of occupation at Phaneromeni. Before its subdivision by W-I, the original dimensions of Room 8 plus 9a were 4.50 m. by 3.60 m., the long axis being southwest-northeast.

Floor 2 slopes sharply upwards as it approaches the stone foundations, thus leaving the middle of the room 10 to 15 cm. below the surrounding walls. Common in Settlement A, this phenomena was presumably caused by wear and the continual sweeping out of rooms; otherwise the reverse process should be expected. Additional proof for the "subsiding" floor level was provided by the V shaped wear pattern in front of the entrance from Area 21. The most pronounced wear is seen in the door's main axis, where the continual coming and going eroded a shallow ramp from the higher outside level down into the room.

A circular darkened patch on the floor about 1 m. in diameter near the northwest corner was probably a hearth. Similar features existed in Room 13 and Areas 25 and 29, where the evidence suggests their use as hearths.

The objects laying on, or just above, the floor are numerous and varied. As usual, handstones predominate with 4 pounders, 1 rubber pounder, 2 rubbing stones, a hammerstone, 2 pecking stone fragments and a Type 4 axe, (S328). A rectangular stone basin was placed in the southwest corner, and a small mortar stood near the middle of W-K, with a quern nearby. The room also contained a copper needle, a worked serpentine disc (S428) and 2 worked, but unidentifiable fragments of the same material. 3 terracotta spindle whorls came from just inside

the door, complemented by a terracotta loomweight in the northwest corner.

The most interesting aspect of the deposit is the strong evidence for flint knapping: 140 flakes almost 1/5 of the total from the settlement 1 core and 13 worked flints were collected. These numbers are in striking contrast with the upper levels of Rooms 8 and 9, which collectively only produced 3 flakes. These in any case, might have originated from level 2 since it was often difficult to distinguish the two periods stratigraphically. All rooms with any deposit yielded some flint, and it is clear that it was a readily available and plentiful commodity at Phaneromeni, but the early period of Room 8 is particularly rich in this material.

Also of interest is the fact that level 2 in contrast with most rooms in the settlement, failed to produce any vessels restorable from sherds, which emphasises, once again in the different nature of the fill.

Area 21 (fig. 8:1, 2)

Rooms 8 and 9 are bounded on the west by a large open and almost featurless area, known as 21. It stretches from Room 18 in the north to Room 7 and the west end of the alley way in the south, and also appears to extend under the unexcavated vineyard. The northsouth section of Area 21 shows the mixed topsoil gradually merging with the lighter and harder packed occupational debris which overlies the sandy red subsoil. In view of the relatively undisturbed layer of occupational debris, the lack of architecture cannot be blamed on erosion. The single architectural feature was found in the main axis of the door to Room 8, 1.20 m. to the west. A metre square patch of mud mortar could be seen contrasting with the surrounding red soil. It was not preserved above the present level of the latter, and only showed

a depth of 10 cm., giving no clues as to its original purpose. The careful positioning of what might once have been a plinth or platform of undefined height in front of the door, must be intentional. Why the ubiquitous stone foundations were not employed here is but one of the questions surrounding this feature.

Three irregularly shaped concentrations of rubble and occupational debris, and one shallow ashy pit, were located to the northwest of Room 8. They are probably the result of random rubbish disposal in what appears to have been a vacant lot.

Room 9 (fig. 8:2)

To the north of, and sharing party wall with Room 8, we have the poorly preserved Room 9. The north wall, W-J, is almost completely missing north of W-AK (this last is below the floor of Room 9), and its eastern extension is only suggested by a concentration of tumble. The other side of the room is slightly better preserved, here W-K 75 cm. wide and 4 courses high probably accommodated a doorway 1.10 m. wide leading to Room 10. W-S to the northeast was not bonded with W-K, implying that Rooms 8 and 9 are additions to an original unit comprising at the least Rooms 10, 11 and 12. Room 9 is 3.70 m. wide and 4.55 m. long. In comparison to the rooms south of the alley, Room 9 provided few finds. A broken adze (S59), a pounder, a perforated stone hammer, and a mortar embedded in lime plaster in the east corner, are the only stone objects. A long spindle whorl, a bin, a pithos and a cooking pot conclude the list, to which should be added M16, an arsenical copper knife. This was discovered on the south side of W-J close to the probable entrance, near which it might have hung. Although no hearth was found, 119 pieces of basin do suggest that cooking took place here.

We have seen, above, that the northern extension to W-J is

questionable and it seems likely that the western side of Room 9 was left mostly open to Area 21 thus serving as a portico to Room 10.

Room 10 (fig. 8:1, 2; fig. 9:5)

On the east side of W-K and Rooms 8 and 9 we find the centrally placed, rectangular, Room 10 measuring 4.60 m. x 3.60 m. It is without doubt the most important of the group in terms of size, finds and architectural features. Had it not been for a layer of ash and debris 70 cm. deep in the southern half, presumably the result of a burnt roof, the whole area would have been interpreted as a courtyard, complete with bench for the storage of utensils and tethering stones for animals.

The well preserved southern wall, W-G, 3 courses deep and 75 cm. in width, borders on the alley way. Against the inner face, a row of stones and mud packing forms a bench 55 cm. wide. It curves to join W-L in the southeast corner of the room, and stands 3 courses high and 55 cm. wide. Preserved only to the same height as W-G, one cannot be certain whether this is indeed a bench or a strengthening device for a weakened wall. W-G is already thicker than most, added to the fact that this feature does not continue in the adjoining Room 11, the former alternative is more plausible, especially in view of the well preserved benches elsewhere at the Settlement (cf. fig. 9:4).

The arrangement of the northeast end of Room 10 is unclear, for erosion has played havoc with the walls of this area of the settlement that encompasses parts of Rooms 9 to 15. But a short stretch of W-S 90 cm. long is preserved, and W-L only extends 4.20 m. northwards, so leaving a gap of 2 m. between it and the beginning of W-Q built on approximately the same alignment. We may assume the points of entry to Rooms 12 and 14 were in this corner, making these 3 rooms interconnected; this would have weakened the structure, and might explain its present lack of preservation.

A flattened stone 35 cm. in diameter, with a circular pecked area of 15 cm in diameter appears to have been placed in the centre of the room. By analogy with similar finds from Rooms 13 and 28 it could be interpreted as supporting a post, which in turn held up the roof. The position of this object (another smaller example close by was probably not in situ) is significant, as it corresponds to a marked drop in the floor level between this point and the south wall. A glance at the longitudinal section of Room 10 (fig. 6) shows clearly that the large tethering stone (S82) adjacent to, but higher than, the post support sat on the very edge of a hard packed havara and earth floor which extended from here to W-S, but which was not found in the 30 cm. lower southern half of the room.

The whole area showed signs of heavy burning. Pockets of black and grey ash were intermingled with what appeared to be decomposed mud brick, to a depth of 70 cm. south of the tethering stone and 30 cm. to the north of it. The increased depth of ash in the south and, as we shall see, the location of objects, rather suggest that this half of Room 10 was roofed; an arrangement believed to have existed in Rooms 13 and possibily, 19. The reason for the difference in floor level is unclear. In the rainy season it would cause water to accumulate in the covered area, unless some sort of protective barrier was erected, and of this no evidence was found. Alternatively, the whole of Room 10 might have been roofed; ash was recorded in the northern half, and the uncontrollable factors of erosion could be the cause for the disparity of deposit between one end of the room and the other.

Room 10 was rich in stone objects particularly handstones but less well furnished with terracottas, and totally lacking in metal. No pattern emerges from the location of the finds, though a point of concentration is seen just south of the post support, with the remainder evenly scattered in a semi-circle from the northeast to the southwest corners. The smaller lithic finds consist of a grinder pounder, 5

pounders, 3 hammerstones, a pecking stone, 2 rubbing stones, 2 rubber pounders, a pair of whetstones, 3 mace heads; 11 pieces of worked flint and 78 flakes. A number of the above would have been used with the mortar and the 4 querns, 3 of which were concentrated in the centre of the room. The 2 perforated stone weights might be associated with the terracotta loomweight also from the same area. The occupants spun, as indicated by the 4 spindle whorls, and certainly cooked, for 2 griddle and 202 basin fragments came from here.

These objects with architectural associations are of interest, namely the 2 post supports and a pivot stone. The one support found in situ suggests, as previously mentioned, alternative roofing possibilities. The pivot stone, though moved from its original position is important by its very existence. Why others were not recorded from the Settlement is surprising, as they would have been an essential part of any hinged door[1]. At Phaneromeni such a refinement was obviously judged superfluous.

Three large pithoi had once stood in the northeastern corner, and must have hampered passage in that direction.

It is difficult to attribute any specific function to Room 10. It did contain some objects indicative of domestic use: basin fragments, a mortar, querns and their accessories; but the emphasis was on weaving and spinning (another terracotta loomweight came from just outside Room 10 in Room 14) and whatever activities should be associated with maceheads. No hearth was located, and in view of the quantity of basins this omission was unexpected. One is justified in supposing that the 2 large stones, one partially built in W-K (S83) and the other near the centre of the room, with hour-glass perforations (S82) were for tethering large animals. It is unclear what other usage they might have served, as the diameter of their perforations is too

1. Weinberg (1956:116) mentions having seen several "door-pivot stones" in Area G in 1951. The K.S.U. excavations failed to record any in that area, and one wonders if earth-filled Type 3 mortars were not confused with pivot stones.

small for use as anchors. If, however, the tethering theory is correct should one expect to find animals in courtyards rather than a room? Finally, of note, is the number of flints and the lack of serpentine jewellery, metal, and the ubiquitous lime plaster bins.

Room 11 (Fig. 8:1)

Adjoining the southeast corner of Room 10 and fronting on the southern end of the alley, Room 11 only contained one small spindle whorl fragment. The lack of finds was probably caused by a higher floor level than in the adjacent rooms.

On the south, W-G which ends here, is slightly wider than in Room 10, but only one course high. The north wall, W-N, 60 cm. wide with a maximum of 2 courses, shows 2 gaps one of which must be a doorway giving access to the room, as the original entrance the east was blocked in the last phase of occupation. The narrow subrectangular room, so defined, measures 4.30 m. by 2 m.

Room 12

This room to the northeast of Room 11 and sharing a party wall with it, only has one well preserved wall, W-N, 75 cm. wide, 2 courses high. The northwest corner, as previously mentioned, is open to Room 10, and of W-AZ on the northeast side, only a stretch 1.40 m. long and 30 cm. wide remains. As we shall see, the whole area north of Room 12 is impossible to interpret satisfactorily. Known as Room 13, it shows unconnected wall fragments running in all directions. In its present state W-AZ would seem rather narrow to have been loadbearing, but it must have closed the gap with W-N since there is a 30 cm. difference in floor level between Rooms 12 and 13. The overall dimensions for Room 12 are: 3.75 m. by 2.80 m.

The best preserved plaster bin of the Settlement was found near the centre of the room; nearby, to the east was a badly preserved example of the same item. Both were set into the ash covered habitation surface. For all its poor state of preservation a number of artifacts came from Room 12. By far the most important is a small fragment of R.P.IV Plank shaped figurine (T.C 193)[1], broken in antiquity. Neither the architecture nor the internal appointments of Room 12 offer any indication as to why a figurine should be found here, rather than elsewhere in the settlement. If this class of object does have religious connotations, it might have belonged to a small family shrine, of which there remains no trace. The other finds include a rubbing stone, 2 rubber pounders, 2 peckers, a whetstone, a stone loomweight, a saddle quern, a zenet, 2 worked serpentine objects, and 4 worked flints plus 22 flakes. There was also a pin and a piece of sheet metal, both presumably copper. Spinning is attested by the presence of 3 spindle whorls and cooking by 2 griddles and at least 48 pieces of basin. From the finds a general domestic purpose is suggested for this room.

Room 13

Once again, erosion has left us but a portion of the walls originally enclosing the room. W-Q to the north is unusually slight (width, 30 cm.) for a load bearing wall, and as such it cannot be considered as the northern extension of the wider W-L in Room 10, for the change in width occurs after a break of 2.40 m. between the two. Both walls, however, follow almost the same alignment. The west end of W-Q flanks a doorway 1 m. wide leading to Room 13 with a fine pebble threshold, the only example of its kind in Phaneromeni. The door is bordered on

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the south side by a short stretch of wall abutting W-AZ, thus creating a half portico. At 2.50 m. from the threshold the remnants of a partition wall 1 m. long join the inner face of W-Q. The southern end of the partition wall runs up against a large, flattened, subrectangular tethering stone which measures 75 cm. x 72 cm. Passage is further obstructed by 2 lime plaster bins placed between the entrance and the stone. The far end of W-Q stops 90 cm. from a short return off the north end of W-P, suggesting the existence of a door leading to Room 14. Even in its delapidated state, W-P, on the east side of Room 13, shows several unusual features. Resembling W-K of Room 14, instead of the usual riverstones it is mostly built of rough limestone slabs which stand on edge along the west face. Because of erosion the method of construction on the other side remains undetermined. The core is of the usual small stones and mud mortar type, and the overall width is 75 cm. The northernmost metre of its east face is flanked by a stone bench(?) 30 cm. wide. How far south the wall extended remains unknown, only increasing the confused picture of the area.

No obvious explanation for the change in building technique has been found. The question must be asked whether it was caused, in this instance, by the availability of suitable slabs or whether the room itself was of greater importance.

The south side of Room 13 is problematic, and there is scant evidence as to how it was enclosed. W-N of Room 12 stops short of Room 13, and the only other well preserved architectural feature is W-O, which to all appearances starts and ends nowhere, and in any case does not fit in with the overall plan of the room.

A number of stones were articulated in the northern sector of Area 22; these appear to form the outer and inner faces of a wall that might once have connected W-O and W-N. If this reconstruction is correct we now have at least part of the room's south wall.

As previously mentioned in connection with Room 12, little remains of the southwestern wall W-AZ, though its existence can be postulated by the difference in level between both rooms. At 70 cm. from W-AZ, and almost parallel with it, a vague alignment of stones runs along the west side of Room 13, intersecting with the side wall of the pebble threshold. A gap in the middle with a lime plaster bin to one side provided access to the "alcove" thus formed. Unfortunately the finds were of no assistance in determining its purpose, but it is just possible that the Plank Shaped figurine originated here. The figurine is broken and the missing fragments were not recovered, which suggests it was not discovered in situ. The whole area has been disturbed by ploughing and if the figurine should belong to a shrine, then the "alcove" on the west side of Room 13 is the most likely candidate. The overall dimensions of Room 13, as reconstructed, are: north-south 5.54 m. and east-west 5.55 m.

A pair of carefully levelled limestone blocks were embedded in the floor; each had a circular pitted area 18 cm. in diameter making it suitable for use as a wooden post support, as the rough finish would have prevented the shaft from slipping. These stones closely resemble those from Rooms 10, 28 and G4 Room 2[1] or surface finds from Area G. In room 13 the northernmost stone is positioned approximately in the middle and the other on the eastern side of W-O, though more difficult to interpret, is on the central axis that runs through the large tethering stone with a flattened upper surface. All 3 undoubtedly had a role to play in supporting the roof timbers that otherwise would have spanned a room of this size with difficulty. A circular patch of hard, burnt, sandy soil, 1 m. across, was found between the central support and the east wall. Although no associated features,

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1: Feature 4. cf. fig. 4.

other than a lime plaster bin were recorded, this is certainly a hearth. Its presence here might suggest that the east side of Room 13 was open to the sky, an arrangement that would further explain the need for 3 posts to support the roofed western half of the room.

One of the 3 lime plaster bins, though not containing any ash or charcoal showed signs of burning. As mentioned, above, this is probably part of the method of manufacture.

Objects were rare and only marginally indicative of domestic pursuits. A rubber pounder, a hammerstone, and a perforated weight were scattered around the room. The prime finds were 3 Zenets from amongst the tumble on the east side or built into the wall of the southwest corner. Two of these (S19 and 21) were the first discovered at Phaneromeni, and it is interesting that a single room should boast 2 identical games, surely a sign of extreme popularity, unless the presence of the second stone due to the spoilation of the site prior to its destruction.

Room 14

The remains of W-K, 65 cm. wide and 2 courses high, like those of W-P, show a preference for havara blocks over riverstones. Evidence for an east wall is quite lacking, and as W-P appears to have a finished north face, it cannot be argued that this wall might once have extended north to close Room 14. Maybe it was an open area providing an alternative means of access to Rooms 10, 12 and 15, but it cannot be interpreted as another alley since a concentration of tumble and some wall fragments were uncovered 11 m. to the east. The present picture of Room 14, is, and will remain, confused from lack of preserved architecture.

The remnants of a stone bench(?) 90 cm. long by 32 cm. wide can be seen on the south face of W-K, opposite the northern entrance to Room 13. No other features were found, though several large thin

limestone slabs (50 x 30 x 2 cm. and 35 x 25 x 2 cm.) lay together in the southwest corner. They are equally well suited as work surfaces, or shelves bonded into the wall. Analogous narrow stone shelves may still be seen in traditional Cypriot houses[1]. A Type 2 shallow mortar was embedded in the floor near the western end of the room. Most of the other finds were concentrated in the better preserved western section of Room 14. A rubber-pounder, a grinder pounder and a hammer-stone lay among the debris, in conjunction with a whetstone, 2 querns, a large stone loomweight? and 2 worked flints. Terracotta is represented by a griddle fragment, a spindle whorl and 2 loomweights. As already mentioned, little of the partition between Rooms 10 and 14 remains, and some of the finds from one room might in fact belong to the other. Thus the concentration of 5 spindle whorls, 3 stone and 3 terracotta loom weights between the 2 rooms indicates, better than anywhere else in the settlement, that here the inhabitants were occupied with spinning and weaving.

The room is notably lacking in pithos sherds, basin fragments and plaster bins.

Room 15

To the north of Rooms 9 and 10 we have the long rectangular Room 15. Most of W-K, the south wall, is missing and W-Y on the northeast side is only slightly better preserved. The latter, one course high and 62 to 80 cm. wide, ends at 1.28 m. from W-K, thereby providing the only means of access to Room 16. W-S on the west, has a wide gap in the middle which is unlikely to have been a doorway since most rooms are entered on their long axis. To the north W-T, 2 courses high and about 60 cm. in breadth, defined the fourth side of Room 15 which measures 3.60 m. x 7.80 m. A single plaster bin with a well hollowed stone was sunk into the floor near the northwest corner.

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1. Thin stone shelves bonded into the wall are particularly popular in Magunda village, near Polis. (Personal observation).

Abutting the inner face of W-T at 65 cm. from W-Y, there are the remains of a small trapezoidal platform, 3 courses high measuring 1.35 m. long and from 45 to 75 cm. wide.

A fine Type 1 stone axe (S289) lay amongst the tumble between W-Y and the bench, and might originally have fallen off the latter, as well as an unfinished mace head (S41) and a pounder. Other worked stones were scattered throughout the room, namely a pounder grinder-pounder, a hammerstone, a pecking stone, and five flints. Several more stones of suitable size and shape might have been blanks awaiting a use. A Type 1 saddle quern with a mortar nearby, were perhaps associated with the pounder and grinder-pounder. Personal ornaments are represented by 2 small pieces of worked serpentine.

A single terracotta loom weight and 2 spindle whorls suggest the occupants spun and possibly weaved. The typical occurrence of one, or, at most, 2 loomweights in a room, with the notable exception of Rooms 10 and 14, indicates how thoroughly the site was stripped of serviceable artifacts after abandonment. In order to weave, even on a narrow vertical loom, several terracotta loomweights and at least 2 of the heavier stone type are necessary. Thus, theoretically, the terracotta weights should be discovered in groups and not in ones or twos.

A pithos stood in the southwest corner, and from the other end of the room scattered sherds of an Episkopi ware amphoriskos (P104) were collected. No griddle fragments were discovered, and the 50 small pieces of basin are hardly sufficient to have constituted a complete item.

A study of the above finds leaves the impression of somewhat more specialised activities, as implied by the single plaster bin, the lack of griddles and paucity of basins. Of note is the absence of animal bones and shells in Room 15, which suggests the occupants were more concerned with spinning and weaving(?) than the preparation of foodstuffs.

Room 16

A door in the east wall of Room 15 opens to Room 16, trapezoidal in shape and exhibiting several unusual features. The east side is defined by the southern extention of W-V, now badly robbed of stones, one course high and mostly one course wide. There appears to have been a narrow bench extending along the inner face of the wall. W-W, the north wall, is better preserved and currently stands 3 courses high with a width of 70 cm. To the west it once had a doorway, 85 cm. across, now blocked by a large riverstone, which communicated with Area 30 to the north. At 1.20 m. from the north corner, a large stone with a pecked hole was incorporated in the wall just above floor level. The question is whether it served as a fastening point or was simply reused as building material, as the hole is flush with the wall face. The descriptions of the west and southern walls were undertaken in connection with Rooms 14 and 15. The overall dimensions of 16 are 4.40 m. north-south, and 3.50 to 4.20 m. east-west.

At the centre there stood a worked limestone boulder, 50 cm. across and 25 cm. thick. The upper surface was prepared as if to support a wooden post, and one side showed a pecked hour-glass hole 2.8 cm. in diameter probably for tethering purposes. However, if this stone was indeed a post support, the tether could equally well have been fastened around the post, thus making the hole superfluous.

Along the east side of the room there appears to have been a bench .3m wide.

For the third time in our description of the settlement, a pattern emerges from the findspots of objects in a room. Four grinder-pounders lay in the north corner where they had been abandoned before the destruction. An unusually shaped shallow stone trough, or basin, (S430) stood, apparently in situ, next to a pair of lime plaster bins, one with and the other without a stone base. A fragmentary Zenet lay

amongst the tumble on the floor near W-W. It might have been built into the latter, like a bifacial Mehen Zenet discussed below, but equally well could have entertained the occupants of the room. Five worked flints (also 5 flakes) and a serpentine amulet were the only other stone objects. A single loomweight was recovered. Basin fragments are quite common, 147 in all, which suggest that cooking took place here in combination with grinding and pounding.

It might have been noticed that, so far, no mention has been made of animal bones, and this for a good reason: very few were recovered. Here and there a few fragments were mixed with occupational debris, from Area 24 came 3 articulated vertebrae and part of a Sus mandible, and from Room 28 came another Sus mandible and a Bos horn core, but little else other than barely identifiable or unidentifiable fragments. It comes as a surprise then to discover in this area of comparatively shallow deposit, the best preserved osteological remains of the site in the form of two Sus mandibles: one in Room 16, and the other in Room 17. The former lay in the middle of the floor with the rest of the skull missing.

Room 17

On the north side of W-W we find a small sub-rectangular room, measuring 3.40 m. by 2.30 m. It is bordered on the north by W-U, 73 cm. wide and well preserved to height of four courses, which intersects with W-V to the east, 7 cm. wider but of the same height.

On the south side is W-W only remarkable by the discovery of S261 a bifacial Mehen-Zenet gaming stone, reused as building material. This is the only stratified occurrence at Settlement A of both games represented on one stone, which is of considerable chronological importance. The other similar, though cruder Mehen-Zenet (S280)

from A was a stray surface find and we do not know whether it still served as a game or was reused in a wall.

Entrance was from the west, through the scant remains of W-AY 50 cm. wide and 3 courses high. The best preserved hearth to be excavated at Phaneromeni stood in the northwest corner against W-U, near to, but facing away from the door. The free standing south wall, 24 cm. high and 10 cm. thick, was built of red siliceous clay lined with mud mortar, and the north side was set against W-U. A back wall of 2 rough limestone slabs completed the U shaped firebox of 70 x 50 cm. Quantities of ash and 60 basin fragments were recovered from inside. South of the hearth was an area of reddened, flat, packed <u>havara</u> acting as a work surface. It had probably supported cooking utensils etc., though no objects were recovered thereon.

The remaining feature of Room 17 is a lime plaster bin sunk into the floor, near the middle of the south wall and containing 25 basin fragments and 14 sherds.

Although much ash was strewn over the floor, one cannot say whether it came from the hearth or the burnt roof. The room is small with the hearth near the doorway, which would assist the evacuation of smoke and the entrance of light. On balance the evidence suggests it was roofed.

Small finds consist of 3 grinder-pounders, 2 hammerstones, a pounder, 8 worked flints (39 flakes), a flint core, and a piece of worked serpentine. There was also a griddle fragment a juglet and 2 spindle whorls. Last but not least, some 700 pieces of basin were recovered from the fill, several large pieces coming from inside the hearth. Due to the friable nature of the clay it has not been possible to restore a single basin to the original shape, so we have little idea of the method of use. From some of the larger pieces it seems they resembled a three sided oval tray large enough to be set on the hearth, so leaving space for the fire below.

We see here the most convincing evidence at Phaneromeni for a room with a specific function, in this instance linked with the preparation of foodstuffs. An association with food is also suggested by the Sus mandible and a number of bone fragments which lay opposite the hearth. The spindle whorls do appear slightly out of place in contrast with the handstones and flints which are quite in keeping with our interpretation. It is, however, frustrating to be unable to draw more meaningful conclusions due to the incomplete nature of the evidence.

Room 18

At the west edge of the settlement there lies a long narrow room, number 18. The west wall, W-AC, 70 cm. wide by 2 courses deep, shows a gap in its middle which could be interpreted as a narrow 70 cm. wide entrance. In view of the unevenness and small dimensions of the break it seems preferable to see this as the result of stones removed by ploughing rather than a planned doorway. W-T, the south wall features a buttress 1.70 cm. from its west extremity, which also shows a row of stones protruding 50 cm. into the room and following the alignment of W-S to the south. The reason for this buttress is uncertain, for it has no obvious role to play in supporting a roof. It might have served, instead, to shore up a faulty wall. We may assume a point of entry existed in the southwest corner, since W-T stops 1.40 m. short of the west wall.

The north wall, W-AF, 65 cm. wide and preserved for a length of 6.30 m stands 2 courses high.

From the remaining evidence it would appear that Room 18 was open to the east, unless it extended right up to W-AI the west wall of Area 19, in which case a complicated roofing system would have been required. Furthermore, Rooms 17 and 30 both contained large

hearths, and if they were roofed, as seems likely, the evacuation of smoke would have to be via the east section of Room 18, separately identified as 30. Since the other walls of 30 are well preserved it is unlikely that a structure of 2.20 m. in length extending from W-AF to W-T, even if it did house a doorway, could have disappeared without a trace. The alternative is that 18 was an open courtyard, communicating with Rooms 17 and 30 to the east, and Area 21 to the south. It measures 8.20 long and narrows from 4.20 m. in the west of 2.20 m. in the east.

Little ash,suggesting that no roof existed and relatively few finds came from here. The only feature of note was a stone bench 55 cm. wide extending the entire length of the north wall, W-AF. The stone objects, scarce in relation to the size of the area, comprise a pestle, a stone hammer, a macehead, a pounder, a rubber pounder, a quern,a mortar and 13 pieces of worked flint (plus 27 flakes). To the list should be added 5 spindle whorls, a small jar stopper, a serpentine toggle (S139), 107 basin fragments, 2 pithoi and a WP III tankard (P 179). No lime plaster bins were excavated.

If Area 18 is indeed a courtyard, then the reason for its existence is uncertain. Adjoining it to the east is Area 19, which due to its width must also have been at least partially unroofed. In this case why build 2 courtyards side by side, especially if neither is associated with living quarters? Structures 17 and 30 were too small for this purpose, and in any case they were mainly concerned with cooking .... Is it necessary here to revise our preconceived Middle Eastern vision of a courtyard connecting the living quarters? Area 19 might have communicated with such an area to be found in 25 and now missing, but Room 18 certainly did not. Again one can only regret the poor preservation of architectural remains and the lack of objects <u>in situ</u> which might have assisted in the elucidation of these questions.

Area 19

Area 19 to the northwest of Room 18 represents the northernmost extension of the settlement as preserved today. The outer wall, W-AM, 80 to 90 cm. in breadth and 5 courses deep is not associated with any architecture on the north side. A trial trench 60 m. up the slope in direction of the necropolis, failed to detect any contemporary remains, which supports the conclusion that building activity did not extend north of Area 19 in antiquity.

The remaining walls enclosing this structure are well preserved for Phaneromeni, and after Room 8 it is the least ambiguous to interpret. W-AN to the east is 5 courses high and a maximum of 65 cm. wide; to the south W-U shows a doorway opening on Area 25; to the west W-AI, 80 cm. wide with a maximum of 5 courses, probably accommodated a door leading to Area 30. The northernmost 80 cm. consisted of a mass of tumble slightly resembling a blocked entrance, though W-AI does not present a finished end. The opposing south face of W-AM has subsided, obliterating any pertinent information on this question. The evidence is, however, in favour of a secondary entrance in this corner. It could not have served as the primary means of access to Area 19 since it is flanked on both sides by fireplaces or hearths. If one or more animals were kept there, as suggested by the tethering stone, they would have been driven in via Area 25, not forced to run the gauntlet between the fires, disturbing any utensils that might be set nearby!

A short partition wall 1.30 m. long by 50 cm., wide, the west face lined with 2 fine limestone orthostats, protrudes south from the middle of W-AM.[1] 1.70 m. further west a bench approximately 40 cm. high and 32 cm. wide abutts the inner face of the wall and extends to the doorway. In its middle was built a hearth, similar to that of Room 17. The sides, 24 cm. high and at least 30 cm. long were made of hard baked mud plastered on the inside with a 1 cm. thick layer

1. Cf. fig. 9:4.

of clay, while the back wall made use of the plastered face of the bench. A concentration of basin fragments nearby, emphasises, as in Room 17, the functional link which existed between these and the walled hearths.

As preserved Area 19 is the largest closed area of the settlement with an overall length of 7.25 m. and width ranging from 3.15 m. in the east to 5.30 m. in the west. It contained a varied assortment of objects, scattered over the habitation surface, though the point of concentration is to the east in the thick layer of grey-black ash. The small finds include a rubbing stone and a rubber-pounder, 3 hammer-stones, 3 pecking stones (2 very fragmentary) a whetstone, a type 3 axe and 11 pieces of worked flint excluding 57 flakes. Four querns, a stone jar stopper(?), a small tethering stone, and 3 Zenets were also recovered, in addition to 4 terracotta spindle whorls, a piece of griddle, a metal pin, and 487 basin fragments. From the number of Coarse Ware sherds Room 19 contained at least 2 pithoi for storage purposes, and 2 Episkopi Ware bowls (plus 2 restored from sherds).

On the west side, south of the hearth, 2 lime plaster bins, reinforced with stones at their base, were sunk into the floor.

The finds are typical of those from other rooms, though the 3 Zenets do stress a definite preoccupation with leisure, and the plentitude of basins suggests an emphasis on cooking. The lack of serpentine and paucity of metal objects is of note.

The question must be asked whether Area 19 was open or roofed? The objects do little to assist us in this respect, though the absence of jewellery, the great number of basins, and several handstones and querns, are not suggestive of living quarters i.e. sleeping, and storage of private possessions but rather emphasises open air activities. There is no reason why Area 19 should not have been roofed, if the north projecting wall supported a beam spanning the

remaining width (a mere 3.40 m.), which in turn supported rafters resting on the end walls. Alternatively, the eastern half, from the partition, could have been covered, a fact intimated by the heavy burning and relative concentration of finds here. Finally, the explanation to be recommended by its simplicity, is that Area 19 was a courtyard whose objects were all indicative of domestic use.

Area 30

The western entrance of Area 19 leads to a small vestibule with a hearth in the southeast corner. This, and the area to the south connecting Rooms 17, 18 and Area 19 is bounded by W-AO, 6 courses high, 56 cm. wide, to the west and by W-AM and W-AI to the north and east. The main feature, as represented by the hearth, is poorly preserved, but visibly of the same type as those in Room 17 and Area 19. Only 2 walls built of heavily burnt stones bonded in mud remain in place. These are 70 cm. long, about 20 cm. wide and nearly 25 cm. high. The other 2 sides are now open, though presumably one of these was originally walled. A large number(at least 344) of basin fragments came from in the hearth and its general vicinity, adding support to our earlier suggestion that these features were used in combination.

The peripheral area (31, 25, 29, 20, 26 and 22) between Area 19 in the north, Room 2 in the south and defined to the east by the edge of the excavation, only yielded scattered unconnected remnants of walls and a number of objects. Quite clearly the settlement had once extended in this direction, though trial trenches to the east failed to locate any contemporary architectural remains. Ten metres east of Rooms 11 and 12 there were 2 segments of Iron Age walls resting on Phaneromeni period occupational debris, but nothing more.

The only features of interest are 2 hearths of the flat circular type in Area 25 east of Room 16, and in Area 29 north east of Room 13. Both are about 1 m. in diameter and made of a hard, burnt, reddened, siliceous material in Area 25 or burnt havara in Area 29. The latter was carefully smoothed and shows a saucer like depression about 5 cm. deep, with a shallow lip, only preserved on the northeast side.

To conclude our description of the Settlement A architecture a few postulations of a general nature can be made.

With the exception of Room 1 the average width of a room is 3.00 m. The minimum width is 2.00 m. and maximum is 4.20 m.

The average length of a room is 5.00 m. (excluding Area 19), with a minimum length of 3.60, and maximum of 7.50 m.

Walls vary in thickness from 0.50 to 0.90 m., with the exception of two partitions, which are only 0.40 m. wide. The most common, and thus preferred, width is around 0.70 m. This could imply that the mud bricks were about 30 cm. long, and two bricks with a layer of mortar in between would so constitute a functional load bearing wall of ca. 0.70 m. in width.

All relatively well-preserved rooms contained at least some stone artifacts, invariably including a quern or mortar and the accompanying grinder-pounder, or rubber. In most rooms one spindle whorl at least was found, as well as basin fragments and pieces of griddle.

From all rooms and areas came a large quantity of sherds, silent witness to pottery surely the most common of private possessions!

A search for meaningful parallels with other Early to Late Cypriot I sites which could have influenced or in turn been influenced by the domestic architecture at Phaneromeni has yielded few results. This is partially due to our incomplete picture of Settlements A and G.

The difficulty of recognising courtyards, the scarcity of preserved doorways and the general lack of architectural refinements, makes for a poor understanding of the internal organisation of the settlement and limits the value of comparative research. In any event analogous material on the island is sparse. With the exception of the M.C.III and L.C.I houses at Kalopsidha and Enkomi Ayios Iakovos no contemporary domestic architecture has been excavated, and the earlier remains are fragmentary or limited in extent[1]. The much cited Alambra house[2] is, as indicated by its name, but a single structure. The nature of Astrom's investigations at Kalopsidha[3] precluded any significant architectural conclusions, and Gjerstad's earlier work at that site had the same limitations as at Alambra. The incompletely published remains at Ambelikou Choma tis Galanis[4] compare well with the remains at Phaneromeni, and hopefully one day the results of Dikaios' work there will appear in print. The "few stray stones from a wall"[4a] at Myrtou Pigadhes are insufficient to be used for comparative purposes. Nitovikla[5], Krini[6] and Nikolides[7] are fortresses and thus of little help here. Though limited in essence, the survey of surface remains at Dhali Kafkallia[8] is finally the most comprehensive material available. If the orthostats from the site are contemporary with the remaining buildings - and there is no reason to suppose that they are not - then we have the earliest evidence for monolithic architecture in Cyprus.

At Phaneromeni, rather a dismal picture of the inhabitants' life-style is painted by the quantity and quality of finds recovered: 3 copper knives, a few awls, pins and needles, terracotta loom weights and spindle whorls, and finally a mass of utilitarian stone objects.

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1. Only the results of one season's excavations at Alambra Mouttes are available for study: cf. Coleman 1977. 2. Gjerstad 1926. 3. Astrom 1966. 4. Dikaios 1946. 4a. Du Plat Taylor 1957:4. 5. Gjerstad 1934:371-407. 6. Catling 1960:298. 7. Gjerstad 1926. 8. Swiny and Overbeck 1962.

Attention to personal ornaments and leisure is suggested by a few serpentine amulets or pendants and numerous gaming stones. But, this is certainly a one sided view, distored by the thoroughness of the looters and the extent of post destruction disturbance and erosion.

With the exception of Room 28, and to a lesser extent 16, no discernable pattern emerged from the findspots of the artifacts which lay on the habitation surfaces inside the structures, a fact which can be interpreted in two ways. Either no pattern existed in the first place, which is against human nature therefore unlikely, or the site was thoroughly disturbed prior to its destruction by fire. As noted in the description of the architectural remains, the latter explanation best fits the evidence, for the only objects of intrinsic value were the two copper knives, small enough to have been overlooked by looters or scavengers. Furthermore, scattered sherds from various vessels prove they were broken prior to the conflagration, as smoke blackened fragments join with others quite unaffected by fire. Some of the pottery in Rooms 2 and 3 in particular, appears to have been intentionally scattered. The sherds of a large storage jar in the northwest corner of Room 3 were splayed out 2.50 m. from its original position. Had the jar been crushed by a falling roof, its fragments should have been concentrated in one spot, and not spread over a third of the room. Finally, the sherds lay on the floor instead of interspersed with the destruction debris, as would have been the case if disturbed by subsequent scavenging. Additional support for the intentional spoilation of the settlement prior to its burning was provided by the discovery of the separate halves of a composite bowl (P196) in Rooms 3 and 28. It could be argued that the bowl was accidentally broken prior to the conflagration and that each half found use in different rooms. A preferable alternative is that the bowl was wilfully smashed and the pieces widely scattered.

It could be argued, however, that the site was destroyed by some natural event, for example an earthquake, which caused roof collapse and the ensuing fire. A severe earthquake would effectively smash and scatter the domestic pottery, provoking fires which would not burn everywhere with the same intensity, thereby resulting in the blackening of some sherds and not others. Later, the survivors might have returned to the ruined settlement and salvaged from the rubble any belongings of value. Such post destruction activity would further scatter sherds and unwanted objects.

A second alternative is that the cause of the fire was accidental and internal, and that it got out of control causing the inhabitants to flee, abandoning most of their possessions. A fire in Area A would not explain, however, how the contemporary structure in Area J, some 350 m. to northwest, was also burnt down.

Both the above reconstructions are flawed. Had the destruction been caused by an earthquake or a large fire, it is probable that some stone artifacts of little value, stored in corners or near walls, would have remained undisturbed, even had the inhabitants systematically searched the debris and removed all serviceable beams. In this instance some form of pattern should exist, if only by association[1], but it was noted that only in one instance was such a pattern recognised.

We shall now attempt to isolate any resemblances in building techniques and plan between the architecture of Phaneromeni and other pre L.C. II sites.

The small two-roomed house and courtyard of E.C.III date[2] excavated at Alambra[3] is clearly of little use when seeking architectural parallels with Phaneromeni. All we see here are two unconnected, sub-rectangular multi-purpose rooms. Fortunately they do have some features useful for comparative purposes. The materials and methods of construction,

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1. E.g. rubbing stones should be discovered near querns, grinder pounders near mortars etc. 2. Stewart 1962:215. 3. Gjerstadt 1926:20.

as well as the room sizes and wall thicknesses (from 0.60 m. to 0.85 m.) are of the same order as those from Phaneromeni. Both rooms are fitted with clay benches used either as sleeping platforms or storage spaces, and it will be remembered that Rooms 10 and 15 of Settlement A probably had a similar feature built of stone. In the northern room a slaked lime hearth is interesting since the same material was used for our "bins" several of which show signs of burning. However, no comparison between the shapes is intended here.

The Cornell University excavations at Alambra Mouttes[1] Area A, are beginning to provide a comprehensive view of a M.C. settlement in central Cyprus. So far a series of square or rectangular rooms have been uncovered[2], extending along the west side of a deep gully. Walls from 0.40 to 0.80 m. in width, mainly constructed of local chert, carried a superstructure of mudbrick[3]. The rectilinear appearance of the rooms and the regularity of wall construction contrasts with the less ordered architecture at Phaneromeni, although the scale of the settlement and size of individual units are comparable. None of the doors were equipped with pivot stones, and the floors were made of hard-packed clay or simply made use of the rough bedrock. Excluding pottery, relatively few artifacts were recovered and specific functions for the various rooms have yet to be determined[4]. Even from the limited evidence of the present finds a pluralistic or domestic purpose seems most likely[5]. The settlement is dated to an early phase of the M.C.[6], somewhat earlier than the remains at Phaneromeni Area G.

The excavations at Ambelikou Choma tis Galinis conducted by Dikaios[7], revealed an interesting complex of at least 10 rooms with many finds in situ. The E.C. date suggested, by the excavator, probably due to the lack of W.P. wares, is too high in view of the diagnostic M.C.

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1. Coleman 1977. 2. Op. cit., fig.2 The 1978 season of excavation, in which the present writer participated at co-director of the Brock University Archaeological Practicum, did not substantially change the architectural picture emerging from the 1976 season. 3. Op. cit. p.73. 4. Op. cit. p.75. 5. Op. cit. 6. Op. cit. p.78. 7. Dikaios 1946 and Buchholz and Karageorghis 1973:132, fig. 53.

pottery stored in the Cyprus Museum[1]. In terms of chronology the site should be intercallated between Alambra (Gjerstad's house and Mouttes) and Kalopsidha.

The most detailed plan of Choma tis Galanis[2] shows a large quadrangular structure (12 x 6 m.), probably a courtyard, surrounded by other buildings. That to the west is an irregular pentagon with a long axis of 9 m. and a maximum width of 5 to 6 m., also probably a courtyard. To the south another room or courtyard 5 x 5 m. serves as a vestibule to the central structure. The remaining walls have not been sufficiently cleared to permit interpretation. Many stone objects and restorable vessels were found on the floors, but we have no detailed information on which artifact types were represented[3]. There also appear to be numerous pits and several secondary features like benches and partition walls.

Viewed as a whole, the Ambelikou Choma tis Galinis settlement has a general similarity with Settlement A at Phaneromeni with its irregular rooms, meandering walls and apparent lack of architectural cohesion. Dikaios saw the site as an industrial smelting complex rather than a habitation settlement, and in view of the finds and size of certain rooms which would have been difficult to roof, there is no reason to dispute this interpretation.

At Kalopsidha the M.C.III habitation[4] is a much more elaborate affair. Finds were plentiful and the excavator managed to extrapolate the function of each room, though in the present writer's opinion some of the interpretations and analogies are slightly far-fetched.

Quite clearly nothing of this calibre existed at Phaneromeni.

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1. Merrillees 1978 :3, classifies the settlement as early M.C., but the matt surface finish and shapes of the pottery in the Cyprus Museum are typical of a later phase of the M.C. (Personal observation). 2. Buchholz and Karageorghis Op. cit. 3. The plan lists up to 95 objects, all of which appear to be stone. The find spots of the pottery are apparently not included on the plan. 4. Astrom 1966:9-12; Astrom 1972a:1.

If Gjerstad is correct in his functional attributions, later accepted by Astrom[1], we then have definite specialisation within almost each room and courtyard. These measured respectively 4.5 x 6 m. and 3.15 x 3.85 m., the outer courtyard being the larger of the two. The other rooms vary in size from 3.20 by 4.30 m. to 1.90 by 2.05 m., most belonging to the upper range. Again we find here a scale similar to that of Phaneromeni.

Rooms 3 and 8 were believed to be sleeping quarters, Room 6 with a large circular lime hearth, was intended as a reception area; Rooms 9, 10, 11 were for storage and domestic activities. A bench built along one wall of Room 10 had served as a storage area for pots. The so-called "megaron" formed by Rooms 1 and 2 is of unknown use, and one would like to see other examples of this lay out in M.C. structures before deciding whether the arrangement is a coincidence or not. Rooms 4 and 7, with one side open were interpreted as shops. This attribution must be subject to caution, since no positive evidence of a non-architectural nature is mentioned in the publication.

The most notable structural difference between the two sites is the relative slightness of walls at Kalopsidha which average 0.45 m. in thickness compared to 0.70mat Phaneromeni. This was not caused by different building materials since mud mortar and stones are the norm at both sites.

In conclusion it will be noticed that the pluralistic function of Rooms 9-11 at Kalopsidha closely resembles that of most, if not all, rooms at Phaneromeni, and this is the most relevant parallel between the two sites.

The most extensive complex of M.C.III house plans was surveyed at Dali Kafkallia[2]. Unfortunately most are fragmentary and only represent the lower foundations, without any indication as to where

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1. loc. cit:1. 2.Overbeck and Swiny 1972:25-28.

doors originally stood. Sometimes it is impossible to determine whether the remains now visible are part of larger complexes with courts, rather than self-contained units. This comment applies, for example, to the small three-roomed houses 1, 2, 3 in relation to houses 4 and 9. Some more substantial buildings - e.g. 25, 28, 34 - certainly owned extensive courtyards, and this was probably the custom of Kafkallia where lebensraum would not seem to have been a problem. Pivot stones, (house 12), bins and basins excavated from the bedrock were found. None of the walls were bonded and they normally measured between 0.50 m. and 0.60 m. wide, with the exception of lighter partitions. Though no architectural comparisons can be drawn with Settlement A, the building methods, in their simplicity, are similar.

In Area I at Enkomi Ayios Iakovos, Dikaios excavated the remains of a private house, the only well-preserved example of its class to have been published for the L.C.I period.

The southern-most building forms a tripartite plan, e.g. three wings surrounding a large courtyard which communicates with another smaller yard and house to the north[1]. Each unit is basically a rectangular 2 to 3 roomed house with interval divisions and wall thicknesses of corresponding dimensions to those at Phaneromeni.

From the review of the comparative Cypriot material it is quite clear that the only valid parallels are those of a general or purely structural nature. If abstraction is made of the generic links between the architecture of Phaneromeni ,Alambra, Kafkallia and Kalopsidha, then few points of comparison can be made. In the present writers opinion, building materials and the manner in which they were employed are not very useful comparative criteria for the end of the M.C. The choice of materials locally available to the ancient builder would be much

1. Dikaios 1969a:155ff; 1969b pl. 267-269.

the same all over the Eastern Mediterranean: stone, mud, lime and wood, and there are only a limited number of ways in which these can be utilised. Mud-bonded stone footings would support brick walls carrying beams covered with branches or reeds etc., the whole daubed with a thick layer of mud plaster. Such was, and still is, the traditional form of house.

The use of benches at Alambra[1], Ambelikou[2] and Kalopsidha[3] as well as wooden posts for supporting roofs and porticos was probably widespread and of little comparative significance. More important is the accretive nature of the architecture at Ambelikou, Alambra and Phaneromeni. Individual domestic or industrial units were shunned for larger, rambling multi-roomed complexes, an arrangement which probably has a bearing on the social organisation of the occupants. The scarcity of <u>in situ</u> finds at Alambra <u>Mouttes</u> and Phaneromeni makes it impossible to elaborate on this hypothesis.

The Early and Middle Bronze Age domestic architecture in Anatolia and Palestine has failed to provide any synchronisms with Phaneromeni despite two exhaustive studies in the latter area by Bonn[4] and Harif[5]. Harif neatly subdivided second millennium domestic architecture into 5 categories, 4 of which consist of differently arranged rooms around a courtyard, and the 5th represents those plans which cannot be classified by the preceeding criteria. The "accretive" lay out of Settlement A without any obvious courtyards is more akin to the E.B.III architecture at Tel el Fara[6] than anywhere else in Palestine.

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1. Coleman 1977, fig.2 Wall M? The excavator does not state that the additional line of stones on the east side of Wall M is a bench, but by analogy with Phaneromeni this seems a distinct possibility. Gjerstad 1926, fig.1. 2. Buchholz and Karageorghis 1973 fig.53, northeast wall of the second courtyard? 3. Gjerstad 1926, fig.3, room 6. 4. Bonn 1976. 5. Harif 1974. 6. De Vaux 1969, pl. XXXIV.

In conclusion we may state that the development of domestic Cypriot architecture shows no evidence for external contact whatsoever.

We shall now attempt to examine briefly what additional information on site function is supplied by the faunal, vegetable and marine remains from Settlement A.

The animal bones were studied by Mr. J. Watson and Professor G. Nobis[1] to whom I am obliged for the species identifications. It is beyond the scope of this work to attempt a detailed osteological study of the faunal remains, and we shall limit the discussion to the number of species represented and their relative frequencies.

As previously mentioned in connection with Room 16, few animal bones were recovered, and most of them were in a poor state of preservation, badly splintered and therefore unidentifiable. As the settlement suffered a violent destruction it is likely that bones scattered amongst the occupational debris would remain undisturbed prior to their recovery through excavation. This suggests the inhabitants of Phaneromeni only allowed a small accumulation of rubbish within their settlement, and that they disposed of animal bones and other rubbish - at some distance from its perimeter.

The frequency chart of the 8 species represented at the Settlement follows below:

Bos	12
Dama mesopotamica	4
Ovis	5
Caprovis	7
Sus	10
Canis (small animal)	1
Bird (unidentified large species)	1

1. Mr. Watson studied the 1975 faunal remains and submitted a preliminary report. Prof. Nobis studied the same material from the 1975 excavations and that from 1976 and 1977: he will be submitting a report for the final report of the Phaneromeni excavations.

Bos remains are from predominantly young to middle-aged animals; and it would seem that the slaughtering age of sus was around 20 months. According to Professor Nobis the bos, sus and caprovid remains came from small indigenous animals that show no evidence for selective breeding.

Though not represented in the sample, donkeys were surely known at the Settlement, as a young animal of this species was interred in the M.C. Tomb 24b at Cemetery C.

The best comparative material for Settlement A comes from M.C. and L.C. levels at Kalopsidha[1], the M.C.III to L.C.III levels at Myrtou Pigadhes[2], the L.C.I and II levels at Phlamoudhi Melissa,[3] the L.C.II and III levels at Hala Sultan Tekke[4] and the L.C.III levels at Kouklia[5]. Several important facts emerge from a comparison of these reports with that for Phaneromeni, which tend to invalidate the conclusions reached by Ekman in connection with the Hala Sultan Tekke material. As with the ceramic assemblage in use at any given time on the island, it is impossible to make sweeping statements on the changes of faunal representation when comparing sites widely distributed throughout the island. This is demonstrated by a study of the Phaneromeni Settlement A material together with that from L.C. Phlamoudhi Melissa, Hala Sultan Tekke and Kouklia.

The common occurrence of Sus and relatively high percentage of Dama Mesopotamica are in striking contrast with the Phlamoudhi Melissa and Hala Sultan Tekke samples, and weaken Eikman's theory that gradual deforestation during the B.A. caused a related decrease in the number of pigs raised for food[6]. An equally high percentage of Bos at Settlement A suggests that his postulated relationship between the increase of

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1. Gejvall 1966. 2. Zeuner and Cornwall 1957. 3. Hess et al 1975.
4. Ekman 1977. 5. Halstead 1977. 6. Ekman 1977.

cattle and decrease of pigs is also a regional idiosyncrasy. Kouklia, for example, follows the trend of other L.C. sites with little evidence for Sus, but unusually high occurrence of Dama Mesopotamica. The question has been asked whether it was a factor in the basic meat supply or a byproduct of the pleasures of the chase. Elsewhere in the L.C., with the exception of Settlement A, the Persian fallow deer was extremely rare if not completely absent from the osteological record.

The findspots of the bones within the settlement show a tendency towards clustering, which seems unrelated to any form of object specialisation within the rooms. Of note is the fact that Rooms 2, 7, 10, 15 and 18, rich in archaeological finds, were without recognisable faunal remains, whereas most other rooms had at least some bones.

The botanical remains recovered by flotation from Settlement A are disappointing in view of the time and effort expended on the collection of soil samples! The 62 samples measuring a minimum of 2 litres each, were processed and analysed by Julie Hanson, who was also responsible for the botanical identifications[1]. The destruction layer of Room 3, which also contained Dama Mesopotamica and Sus bones, emerged as the richest botanical deposit of the settlement, with several fragments of lentils - probably the cultivated type Lens culinaris - and a few grape pips. The sample was too small to tell whether the latter was cultivated (Vitis vinifera) or wild (Vitis silvestris)[2]. The only other identifiable botanical specimens, excluding common field weeds, were lentils from Room 28 and a small apple or pear seed from Room 10.

Although evidence for barley and wheat was lacking from Settlement A, the former was recorded in the M.C. tombs[3] in Area C, and an impression

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1. The identifications are based on J. Hanson's preliminary report on the Phaneromeni material. 2. Since Helbeck has identified cultivated grape at Kalopsidha (Helbeck 1966:119) and Apliki (Helbeck 1962:180), it seems likely that the Phaneromeni grape pips were also from the cultivated specis. 3. Three grains of hulled barley, Hordeum sp., came from the tombs.

of the latter was noted on R.P.I South Coast vessel from Evdhimou Amolo A. It can surely be taken for granted that in L.C.I these cereals were widely cultivated in the Episkopi area, as indeed they were on the far side of the island at a slightly later date[1].

From the amount of molluscan material recovered from Settlement A, it would seem that its inhabitants supplemented their diet with sea foods, probably collected from Episkopi Bay. About 150 mollusca were recorded, of which 69 stratified and easily recognisable pieces are listed in the table below[2].

Glycimeridae	21
Cassididie (Cassis sulcosa)	11
Murex (Trunculus)	7
Dentiliidae	7
Cymatiidae (commonly known as conch)	5
Patellidae	4
Cerithiidae	1
Tellinidae	1
Arca noae	1
Nassidae	1
Buccinidae	1
Cymatium corrugatum	1
Cypraeidae	1
Crustacean claw	6
Echinoderm	1
	69

Both of the most common species recorded are edible, and this fact, rather than their possible use as ornaments[3] is the probable reason for their presence at the Settlement. The Patellidae (limpets) were perhaps collected for the same purpose[4], and the 6 crustacean claws suggest that crabs and/or spiny lobsters were already appreciated at this date. Edible sea urchins are easy to gather and would have provided a seasonal supply of protein. The single occurrence of this species, however, suggests it was brought to the Settlement as a curio rather than a source of food.

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1. Cf. Helbeck 1966:115ff. Barley was also found at Apliki (Helbeck op. cit.), but it might have been imported to the site. 2. The identifications were made with the help of Stavrinos 1974, and are included here on a preliminary basis. A detailed report on the mollusca will be undertaken at a later date. 3. Only one Glycimeridae shell appears to have been intentionally perforated. 4. See Shackelton 1972 for the use of limpets as food. Compare also the molluscan assemblages from E.B. Myrtos with L.C.IA Phaneromeni.

Some of the smaller shells, especially the Dentiliidae, were probably used in the manufacture of personal ornaments. The little Buccinidae shell was complete with a suspension hole.

The distribution pattern of the molluscan material throughout the site was quite even and failed to show an appreciable concentration of the types used for food or ornaments within any given area.

II THE LITHIC INDUSTRY OF EDPISKOPI PHANEROMENI AND PRE LATE BRONZE AGE SITES IN THE AREA

Arguably the most unexpected result to emerge from the excavations of the L.C. IA settlement was the continued dependence on lithic technology at this advanced stage of the Bronze Age. To the large assemblage of handstones and ground stone tools, must be added over 800 flakes and chipped stone implements. Indeed, were it not for the handful of copper objects, the typological characteristics of the site's non-ceramic artifacts would classify it, with few exceptions, within the Chalcolithic cultural horizon.

This situation probably reflects an island wide pattern created by the ready availability of a material which was more economical than metal for the manufacture of tools. Chert and hard igneous rocks are locally abundant, thus free, and a few minutes of labour could produce a functional sickle blade, a few hours an axe or an adze. The purchase or manufacture of metal implements necessarily required a larger expenditure of resources, possibly beyond the means of the average man.

Most of the assemblage was fashioned from suitable stones collected in the Kouris riverbed, and with the exception of axes, adzes, mace heads, whorls and ornaments, few items were specifically shaped.

The majority of objects discussed here, are, by their simple and functional design, poor chronological indicators. Whenever possible the chronological range will be stated, along with relevant comparative material. For common artifact types - grinders, pounders, mortars, querns etc. - parallels do not claim to be exhaustive, as this would merely duplicate the research undertaken by Dikaios, Stewart and Astrom. But for rare or unique objects, an exhaustive search has been undertaken, and it is unfortunate that only too often the previously published descriptions are inadequate for meaningful comparisons to be drawn.

A number of surface finds from Phaneromeni, almost entirely handstones, but also a few querns and games, have been included in the typology since it was felt it would not distort the picture (see object catalogue for findspot of each object). These were collected in the fields directly surrounding Areas A and G, where trial trenches failed to detect any evidence for earlier or later occupation. The ceramic assemblage in these fields consistently belonged to the Middle and Late Cypriot IA.

The chipped stone industry is not included in this chapter, as it forms part of a separate study undertaken by Holly Morris at Michigan University.

The catalogue number of all lithic finds from Phaneromeni is prefixed by S, e.g. S125 ; those from other sites are prefixed by the initials of that site (A1, BT, Stym etc.). The smallest division on all scales is one centimetre, except for the group photographs of gaming stones and larger stone objects left <u>in situ</u>. For the findspot and detailed description of each object from Phaneromeni included in the typology, the catalogue at the end of the thesis should be consulted.

Axe

Sample : 9. Fig. 1:1

Material: Andesite, felsite.

Description: Since 5 of the axes are surface finds of the type most likely to be noticed and collected as tools or curios, they will be treated in a more cursory fashion. The inhabitants of Erimi Pamboula surely made use of Types 1 and 2, though only type 3 is recorded in the excavation report[1]. Pamboula is but 1500 m. northwest of Phaneromeni on the opposite side of the Kouris, and surface finds from the former could have found their way to Settlement A.

Type 1: 2 S289, 294. Figs. 12, 13. Av. L. 11.4 cm., W. 5.3 cm., Th. 3.1 cm. Long with convex faces and narrow, slightly flattened butt. Khirokitia Type IIIa[2]. Both axes are either unfinished or have been reused in some other capacity, since their cutting edges are flattened and blunt. The sides of the axes are frequently ground flat and taper inwards towards the cutting edge. This would appear to be a characteristic feature.

There are no exact parallels for the carefully worked shape of S289 and 294 at Sotira Teppes or Erimi Pamboula. The former was discovered between the platform and east wall of room 15 and is the only stratified axe from the site.

Type 2: 3 S5, S179a, 290. Figs. 12, 13. Av. L. 11.9 cm., W. 5.6 cm., Th. 4.3 cm. Long, rather thick with convex faces and slightly flattened butt. Sotira Teppes Type 1b[3] and possibly Erimi Pamboula Type I[4]. Type 1b from Teppes "Long with convex faces and rounded flat butt. Two well preserved examples pecked all over, but polished in the area of the blade", corresponds exactly to S5 and 290, which also have a little polishing on both faces just behind the cutting edge. The shape and technique of manufacture of the present axes resemble those from Philia Drakos Site A[5].

Type 3: S61, 96(?) . Figs. 12, 13. L. 13.5 cm., W. 7.5 cm., Th. 3.3 cm. Flat triangular. Erimi Pamboula Type II[6].

The butt of S96 is missing, therefore it cannot be accurately classified.

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1. Dikaios 1936. 2. Dikaios 1962:45, fig. 23 . 3. Dikaios 1961:190, pl. 93:84; 128, 227, 228. 4. Dikaios 1962:122, fig. 61:1.
5. Watkins 1969, photo. 27, lower right-hand corner especially. Although no scale is published, 179a, should be approximately of the same size. 6. Dikaios 1962:122, fig. 61:2, 3. S61 appears unfinished so the ultimate profile of the cutting edge remains questionable.

Type 4: S298, 328, 421. Figs. 12, 13. Av. L. 14.6 cm., W. 6.2 cm., Th. 2.7 cm. Sub-rectangular, very crude. No attempt has been made to produce a symmetrical tool. S421, which is basically an unaltered riverstone, shows on its blunt cutting edge the most pronounced wear pattern of any axe or adze from Phaneromeni: namely a series of shallow parallel ridges extending towards the butt.

Type 4 compares well with Dikaios' "Flaked celts" from Sotira Teppes[1]. These axes were so crude that there would be little incentive to transport them from even as close as Erimi Pamboula. They were probably manufactured by the inhabitants of Phaneromeni for a specific purpose.

With the exception of S61, none of the Phaneromeni axes show evidence of hafting. Normally the butts are tapered as if to fit more comfortably in the hand, and the rounded shaped butts, like that of S290, would have been extremely difficult to haft.

Although published stone axes from the E. and M.C. are lacking, there is every reason to believe that these tools remained in common usage throughout the period, as proved by their occurrence at Phaneromeni and other B.A. sites investigated by the K.S.U. survey (Tab. 7).

Seven Type I axes were recovered by the survey, (fig.45) and 4 of these had flattened cutting edges. Also of note is a morphologically identical axe from the Chalcolithic site at Orga Palialona[2] on the north coast, which proves that this type with blunt end is not only restricted to the southern region. No Type 2 axes were recorded, and Types 3 and 4 were represented by a single example each, both from the same site (Anoyira Livadhia, fig. 45).

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1. Dikaios 1961:193. 2. Cf. Catling 1966.

Adze

Sample: 3. S59, 257, Sa. Fig. 13.

Material: Andesite, basalt.

Description: Medium sized, from 8.5 to 10 cm. long. Wedge shaped, perfectly smooth on all surfaces. Rounded cutting edge with one face convex, the other almost flat. Well defined narrow butt, straight or slightly convex. Sides and butt slightly flattened, as well as both faces back from the cutting edge.

These tools are more carefully finished, smaller and slimmer than axes. The uneven bevelling or sharpening of the cutting edge is certainly intentional, for two reasons: one, the stone has been carefully ground on all other faces, and it would have required little extra labour to produce a symmetrical cutting edge[1]; two, if the stone was intended as an axe, the uneven cutting edge would cause the blow to glance sideways. In view of the preceding, these tools are best suited for use as adzes. Furthermore, S257 and Sa have most signs of wear on the convex or outside, cutting edge, which is the typical wear pattern of an adze or hoe.

There are no published tools of similar proportions from the Cypriot Neolithic and, more significantly, only one piece from the Chalcolithic. This is a so called "axe-head sharpened on one side; length 10.3 cm."[2] of early Chalcolithic date.

Though rare, adzes do occur in the Chalcolithic, as several examples from Vathy̆kakas[3] are on display in the Kouklia Museum. They too, are small, have well bevelled edges and square butts, like those from Phaneromeni.

Stewart[4] believes a series of flat sub-rectangular bronze blades are adzes. Two of them have cutting edges with one side convex and the other flat (Nos. 21 and 23). This feature appears intentional and is further support for our interpretation of the Phaneromeni pieces as adzes. Through lack of evidence the question must remain open, but, on balance, the adze theory does seem preferable.

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1. Pond 1930:88. 2. Buchholz and Karageorghis 1963:169, 497; 1836.
3. Maier 1973:193. 4. Stewart 1962:249, fig. 100.

Two fragmentary adzes or chisels were recorded on the survey (Tab. 7). Both have single rather than double cutting edges, and in this respect are reminescent of contemporary carpenter's chisels.

Rubber-pounder

Sample: 39.

Material: Andesite, diorite, grano-diorite, diabase.

Description: Type 1. Elongated: 15. Figs. 12, 14. S2, 50, 64, 90, 156, 157, 176, 187, 223, 236, 240, 259, 296[1], 366, 370. From 8.2 to 25 cm. long. Rubber-pounders are usually unaltered riverstones, but some are modified and given a handle (S176, figs. 12, 15) or a more regular shape. One side or more used for rubbing - i.e. the back and forth motion associated with a saddle-quern. All examples have both extremities irregularly pitted from use as pounders. The pitting, however is less pronounced and more regular than that typically associated with hammerstones.

Type 2. Discoidal: 24. Figs. 12, 14 S39, 65, 86, 89, 134, 143, 169, 263, 297, 300, 308, 325, 331, 333, 339, 368, 369, 376, 380, 382, 384, 417, 433. The largest measures 8.4 by 8.2 by 3.6 cm. Av. size between 8 and 10 cm., with a thickness of 3.7 cm. One side or both used for rubbing; both ends and sometimes also the sides abraided from pounding. Fourteen examples have some degree of pitting on both faces, from tertiary use as hammerstones (fig.12 top row especially; fig. 14; S89, 331).

From a careful study of the sections of "pestles" from the Neolithic[2], Chalcolithic[3], Early[4], and Late Cypriot[5] it would appear that many of those with one or more flattened surfaces were also used as rubbing stones. This suggestion is supported by the discovery of typical Type 1 and 2 rubber-pounders at Sotira Teppes, although none were published by Dikaios from the excavation[6]. These finds were noted on the flanks of the hill below the main excavation. The largest example of Type 1 is approximately circular in section with 2 opposing

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1. Transitional between Types 1 and 2. 2. Dikaios 1961a, pl. 97, 98; Dikaios 1962, fig. 46:4, 7, 9 and possibly 13 labelled as a "hammer", fig. 36:20. 3. Dikaios 1962, fig. 61, 65. 4. Stewart 1962, fig.104:3, 4 and possibly 5, labelled as "pounders". 5. Dikaios 1969 a, b, c; 1971, from Enkomi Ayios Iakovos. 6. Dikaios 1961. Cf. fig. 47:6, 1-2.

areas flattened from rubbing and both ends flattened or pitted from pounding. It measures 31 cm. with a maximum diameter of 8.1 cm. (fig. 47, 6:1). A smaller rubber-pounder from the same site is triangular in section with one side worn smooth and both ends pitted (fig. 47, 6:2).

Since our definition of a pestle differs from Dikaios', it is safe to conclude that the Phaneromeni type of rubber-pounders were in use from Neolithic II (Sotira Teppes) to L.C. III (Enkomi Ayios Iakovos).

Bottle shaped handstones usually described as pestles are quite common in the Neolithic[1] and Chalcolithic. The Paphos Museum owns a fine bottle shaped rubber-pounder (P.M. 227) of unknown provenance.

The dual functions of rubbing and pounding are also noted at Ali Kosh and Tepe Sabz in Iran[2], and are certainly a common feature of handstones at other pre-Iron Age sites in Cyprus. The need for multi-purpose tools was probably due to the nature of the foodstuffs available at the time. Forbes[3] notes that .."the earlier husked cereals like emmer and spelt demanded a proper cleaning (winnowing) and conditioning (roasting) a pounding to separate the husk from the grain and a final grinding". In this instance grinding and rubbing may be taken as synonymous since the end result would be identical.

Rubber-pounders of both types are the most common form of handstone at Phaneromeni (See tab. 7). This is generally true of other B.A. sites in the survey region, which provided an additional 71 pieces.

Rubbing stone

Sample: 18

Material: Andesite, diorite, felsite, limestone.

Description: Type 1. Elongated: 17. Figs. 15. 16 . S38, 47, 70, 74 76, 127, 131, 135, 167, 269, 327, 343, 363, 397, 419, 420. From 9 to 29.8 cm. long. Usually cylindrical or flattened in section but sometimes irregular, with one or two areas smooth from rubbing. The rounded ends should not show signs of wear, or else the object must be classified as a "rubber-pounder".

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1. Op. cit. pl. 89:273, pl. 97:144, 67, 273, 133, Type II. 2. Hole and Flannery 1969:171. 3. Forbes 1955:138.

Type 2. Discoidal: 2. Fig. 16. S332, 432. From 8.3 to 13.2 cm. long. Were it not for the lack of any signs of pounding, this type would be identical to discoidal rubber-pounders. The rarity of Type 2 suggests that S332 and 432 were perhaps intended as rubber-pounders, but not used for the second function.

Rubbing stones and querns belong together by definition, since the former would be of little use without the latter. Though no rubbing stones are published from other Cypriot sites, they surely existed. In view of their size, the two "rubbing stones" of E.C.III date published by Stewart[1] should be reclassified as querns.

The shape and size of a so-called "grinder" from Kalavassos Site A[2] suggest it was used as a rubber or quern. The same is true of the grinder from Ambelikou Ayios Georgeos[3].

The amorphous shape and lack of obvious wear patterns probably explains the lack of published rubbing stones from other sites. This lack of characteristic features could explain why only 11 such were recorded on the survey, versus the 387 saddle querns. As noted above, both types belong together, yet the discovery ratio of querns to rubbers is 35 to one!

Grinder-pounder

Sample: 28. Figs. 16, 17. S34, 40, 42, 44, 51, 97, 116, 130, 160, 171, 190, 196, 207, 215, 218, 221, 237, 256, 262, 282, 285, 286, 321, 323, 342, 373, 383.

Material: Andesite, diorite, diabase, felsite, grano-diorite, quartzite.

Description: Spheroid or irregular ovoid. These are riverstones in their natural state. Usually small enough to fit into the palm of one hand, they have one or more areas well smoothed from grinding[4] a substance in a mortar or slightly hollowed stone, rather than on a quern. This mode of use is suggested by the abraided edges,

1. Stewart 1962, fig. 104:1, 2. 2. Dikaios 1962, fig. 54:2. 3. Dikaios 1962, fig. 70:4. 4. For practical purposes, in this typology the operations of "grinding" and "rubbing" have been clearly defined and differentiated. As above mentioned (p.74) rubbing is the back and forth motion associated with querns, whereas grinding is a back and forth and alternatively circular motion. The latter is more feasible with a small palm sized stone than with an elongated, and heavy, rubbing stone.

which would not exist if the stones were used exclusively with querns. Grinding surfaces are interspersed with those reserved for pounding, which often results in a wear pattern that resembles the design found on tennis balls. The abrasion of the pounding surfaces is similar to, but finer than that on rubber-pounders, perhaps because these tools are lighter, therefore less force could be exerted without damaging the user's fingers! The pounding surfaces are always faceted from use.

Handstones that might have served the dual purpose of grinder-pounder, were collectively labelled as grinders by Dikaios[1] or pounders by Stewart[2]. For example, Level IIIA at Enkomi Ayios Iakovos produced, amongst others, 3 grinders with "pecked edges"[3]. About 40 grinders are published from this site, and it would seem that most of them, according to Phaneromeni criteria, should be labelled as grinder-pounders. The same applies to the "multilateral pounder" published by Nicolaou[4].

By definition, the grinder pounders embody a dual function, which, in turn, may suggest that the substance they were altering was first pounded and then ground. If these tools were meant for pounding and grinding foodstuffs - which is likely - one may ask whether these were the same foodstuffs associated with the rubber-pounders. In today's highly specialised world one would like to associate different tool types with different functions!

The site survey recorded 24 grinder-pounders, 14 of which came from Erimi Kafkalla. The characteristic "tennis-ball" pattern is well attested at other sites and should not be interpreted as a feature restricted to Phaneromeni grinder-pounders.

Pounder

Material: Andesite, diabase, diorite, acid aphanetic igneous stone, felsite, limestone.

Description: With few exceptions these are unaltered riverstones. There is a marked variety in size and shape, and they resist too rigid a

1. Dikaios 1961:197. 2. Stewart 1962, fig. 104:5, 6. 3. Dikaios 1969b, pl. 127:26, 27, 50. 4. Nicolaou 1972:94, no.49.

classification. Those from Phaneromeni belong to the following broad categories:

Type 1. Elongated: 11. Figs. 17, 18. S49, 58, 118, 175, 183, 309, 336, 337, 365, 393, 418. (S133 and 422 are of uncertain attribution, therefore have not been included in the list. S429 is a surface find from Area G, and might be Chalcolithic; it is otherwise unique at Phaneromeni. S337 and 365 are large heavy pounders intermediary between Types 1 and 3. They have been subjected to vigorous pounding, as witnessed by the heavily chipped surfaces. From 9.1 to 17.5 cm. long, usually triangular or quadrangular in section.

Type 2. Triangular: 7. Figs. 18, 19. S120, 122, 124, 258, 254, 303, 364. Usually pitted on apex and opposing side only. From 7.2 to 11.8 cm. long.

Type 3. Quadrangular or spheroid : 14. Figs. 18, 19. S4, 9, 63, 119, 121, 152, 182, 250, 260, 291, 310, 329, 372, 435. Diameter from 5 to 7 cm.

The main criterion for differentiating hammerstones from Type 3 pounders is the lack of characterisitic faceting from repeated and prolonged use on the latter type. The other difference is a general lack of regular shape. Of all the Phaneromeni lithic types this is the least well defined and it is certain that many of the unaltered river pebbles found during excavation, but discarded for lack of obvious signs of use - i.e. wear - might indeed have served as hammers.

Type 4. Minature: 3. Fig. 18. S200, 374, 381. From 4.6 to 5.4 cm. long. Spherical or circular in section. Pitted on ends or on one face. By its small size this type is difficult to recognise in the field and it is possible that many examples went unrecorded.

A functional differentiation has been made between pounders and pestles at Phaneromeni. The former have always been subjected to heavy pounding in a rough mortar, and the latter, used like a pharmacist's pestle, are devoid of pitting. It is impossible to determine how many of the published "pestles" - from Enkomi Ayios Iakovos in particular - belong to this category, but if the Phaneromeni assemblage is taken as representative of the B.A. as a whole, they should be quite rare.

Since rubber and grinder pounders were common in the periods both preceeding and succeeding the occupation at Phaneromeni, in theory, the ordingary pounder should be equally popular[1].

Following rubber-pounders, the simple pounder is the most common handstone type, a picture which is also reflected in the survey material. It lists 68 pounders of types previously recorded at Phaneromeni Settlements A and G. Of note is the high percentage of pounders at Erimi Kafkalla - 26 in all - which includes 5 of the so-called "heavy pounders", only rarely occurring at Phaneromeni. A single miniature pounder was recorded at Anoyira Peralijithias.

Pestle

Sample: 3. Fig. 25 . S113, 211, 247, (335?).

Material: Andesite, felsite.

Description: Riverstone. From 10.8 to 14.4 cm. long (S335 only measures 6 cm., and is rounder in section). One extremity worn very smooth. As indicated by their name, these tools were only used with a circular motion, or for pounding in a smooth mortar, with the resulting highly polished work-surface.

It was mentioned in connection with the pounders that several (6) "pestles" from Enkomi Ayios Iakovos were published by Dikaios, but we do not know to which category they belong. The same is true of the typology for pestles from Idalion[2]. Not knowing whether these objects are pestles or pounders, this typology has not been correlated with ours[3].

Hammerstone

Sample: 17. Figs. 16, 20. S45, 48, 125, 128, 168, 186, 201, 209, 230, 284, 304, 306, 307, 340, 345, 371, 379.

Material: Andesite, aphanitic igneous stone, diabase, grano-diorite, diorite, felsite, limestone.

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1. Dikaios 1962, fig. 36:19, from Troulli; fig. 46:277, 54, 123, from Sotira Teppes; Stewart 1962, fig. 104:3; Dikaios 1969b, pl. 127:17.
2. Gjerstad 1935, Pl. CLXXXIII. 3. See also Astrom 1972a:160, "Pestles".

Description: Riverstone. The all purpose tool! Av. diameter 6 cm. for the more common ovoid or approximately spherical examples, therefore small enough to fit comfortably into one hand. Other shapes exist, and no discrimination other than size was shown in the choice of a suitable tool for hammering. Signs of wear may be found on all surfaces, though ovoid hammerstones have wear concentrated on the ends. Frequently the tool was used to hit a small hard object (S48, 168, 230, for example), as shown by the deep pitting on one or both sides. The smaller hammerstones are quite irregular and unsuitable for maceheads, so the pitting cannot be explained as a preparatory measure prior to drilling. The wear is frequently heavier - e.g. more pitted - than that on pounders; sometimes it is the only criterion for differentiating the two. As with all subjective attributions a few borderline cases do exist.

The earliest published hammerstones come from Sotira Teppes[1], where they are usually made of limestone, versus the igneous rocks favoured at Phaneromeni.

Many of the pestles and hammers from Apliki Karamallos[2] are of the right size and shape to fit the Phaneromeni category of hammerstones.

Pecking stone

Sample: 25. Figs. 18, 20. S43, 67, 68, 98, 149, 212, 220, 245, 249, 264, 265, 266, 267, 287, 288, 292, 293, 317, 326, 361, 375, 377, 394, 398.

Material: Quartz, chalcedony or chert by definition[3].

Description: Almost always spherical. Av. diameter 6 cm. The best examples are perfect spheres. The 5 largest peckers are heavily flaked and irregular, but otherwise the surfaces are always rough and micro-faceted. Some pecking stones have evidence of secondary usuage (S398) as scrapers, after having been accidentally (?) fractured in two.

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1. Dikaios 1961:, pl. 100:620, 621, 40; Dikaios 1962, fig. 46:10, 11, 12, but not 13 which appears to be a pounder. One of these stones was associated with a flint flaking installation. Op. cit. p. 94. 2. Du Plat Taylor, 1952: 162. 3. Several fine grained gabbro or granite pebbles show the same wear patterns as pecking stones. They probably served the same purpose, though less satisfactorily.

Peckers are employed for shaping other stones, especially hard crystalline igneous rocks, of the type most common at Phaneromeni. The description of an experiment with a chert pecker, undertaken by Skavlem is self explanatory[1]: "Close examination showed that as he struck the broken celt with the piece of chert, bits of chert flew off leaving many sharp edges. These sharp edges acted as so many sharp chisels, which cut the crystals of the celt reducing them to dust, and so gradually shaping the broken celt as desired". However, the high proportion of pecking stones at Phaneromeni combined with an almost total lack of shaped stones, suggests they might have also served another purpose.

Dikaios[2] mentions that hammerstones from Sotira Teppes are usually of chalcedony, micro-gabbro, micro-dolorite, chert and more rarely diabase or hard limestone. The chalcedony and chert examples should, according to our criteria, be classified as pecking stones[3].

The stone objects labelled "hammers of quartzite"[4] from Kalavassos Site B should also belong to this category, but not one of the spherical grinders from Enkomi Ayios Iakovos was of chert or chalcedony, which is surprising in the light of the Phaneromeni material.

Pecking stones are not uncommon at the B.A. settlements in the region. The 16 examples recorded were distributed between 5 sites of Chalcolithic III to late M.C. date (see Tab. 7 fig. 45).

Whetstone

Sample: 10.

Material: Andesite, fine grained limestone.

Description: Type 1. 5. Fig. 23: S23, 191, 219, 283, 425. (434?). Without hole. Av. length 10 cm. Unworked elongated pebbles, either oval, quadrangular or triangular in section. Only recognisable as whetstones from signs of wear on one or both faces.

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1. Pond 1930:88. 2. Dikaios 1962:94 n. 4.; see also Dikaios 1961:198, pl. 100, 101. 3. The present writer noted one perfectly spherical and several less well shaped chalcedony peckers at Sotira Teppes. 4. Dikaios 1962:136.

Type 2. 1. Fig. 23 . S 21. L. 19cm. Flattish, tapering body, biconical hole drilled in top. Cf.: Stewart's[1] Type BIa.

Type 3. 3. Fig. 23 . S18, 22, . Oblong, with hole drilled from top to side. Cf.; Astrom's[2] Type 3b.

There are no published comparisons for Type 1, which is not surprising considering the problem of recognition in the field. Careful scrutiny is necessary to differentiate Type 1 from ordinary, water smoothed, unused river pebbles.

Type 2 is quite common[3], and dated by Stewart[4] from E.C.I. to L.C.I.

Equally well represented is Type 3 which first appears in M.C.I[5] and lastsinto the L.C.I and II.

Of the 5 whetstones recorded on the survey, none were drilled.

Mace-head

Sample: 10. Unfinished, questionable: S41, 150, 386.

Material: Andesite, felsite, limestone.

Description: Type 1a. 3. Figs. 21, 23. S213, 334, 346. Ovoid with cylindrical drilled perforation. Av. D. 5.3 cm., Av. H. 5.2 cm., Av. D. of hole 1.88 cm. Cf. Astrom's[6] Type 2b.

Type 1b. 1. Fig. 21 . S301. Ovoid with biconical drilled perforation on the short axis. L. 7.5 cm., D. approx. 6.6 cm., D. of hole 1.7 cm.

Type 2. 1. Fig. 21 . S 10. Cylindrical with biconical perforation. Astrom's[7] Type 3b.

Type 3. 1. Fig. 21 . S299. Miniature. Spherical or roughly conical with biconical pecked or drilled perforation. Av. D. 4.1 cm., Av. H. 3.3 cm.

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1. Stewart 1962. 2. Astrom 1972a. 3. There are 2 unpublished examples in the Limassol Museum, LM RR327/15 (L. pres. 20.8 cm., W. 2.8cm., Th. 1.4 cm.) and 121/48 (L. 7.3 cm., W. 2.3 cm., Th. 0.9 cm.), both from Pyrgos. The latter is an unusually small piece for this type. Both came from R.P.III Mottled horizon tombs. 4. Stewart 1962:354. 5. Astrom 1972a:203. 6. Astrom 1972a:159, fig. 19 : 3. There is an unpublished example in the Limassol Museum, LM RR327 (L. 7.1 cm., W. 1.4 cm., Th. 1.4 cm.) from Pyrgos, found in a RPIII Mottled horizon tomb. See also Dikaios 1938, pl. LIX:11, dated to E.C. III-M.C.I by Stewart (1962:387). 7. Astrom 1972a:159.

Several mace-heads must have been drilled with a hollow metal tube since the diameter only increases very slightly from one extremity to the other.[2] Horizontal striations are clearly visible inside the perforations, which excludes the possibility that the holes were reamed after drilling. It seems unlikely that such symmetry could have been achieved with anything but a metal drill, as some of the rocks chosen are extremely hard. Andesite rates about 6 on Moh's scale, and felsite is even more resistant.

S41, a perfect ellipsoid, has both ends carefully flattened, which might have been part of the preparatory measures prior to drilling. The same is probably true of S150 and 386 with diametrically opposed pecked depressions.

Dikaios believed[3] a similar stone was an unfinished mace-head "The hole in the centre was not bored through and had evidently been left incomplete. On the opposite side there are traces of chipping doubtless the result of preliminary work before boring". Incompletely drilled, unfinished mace-heads are quite common in southern Cyprus. The Limassol Museum owns one (LM RR476/2), and Anoyira Peralijithias S52 is a Type 1a mace-head with shallow drill holes at either end. The size and shape of Peralijithias S52 proves that the 3 questionable stones from Phaneromeni are indeed unfinished mace-heads.

Mace-heads of Type 1a, with a cylindrical or biconical hole, are common in Cyprus from the Neolithic[4] through the Early and Middle Bronze Age[5] down to the Late Bronze Age[5a]. Consequently they are of little chronological value.

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1. Astrom 1972a. 2. Hodges 1965:106, for the technology of such operations. 3. Dikaios 1938:48, fig. 16:B. For an identical object labelled as an unfinished mace-head, see Boehmer 1972, taf. LXXXVIII:2240. 4. Dikaios 1962, fig. 22:1087, 1090, 385 and fig. XIII:9; Peltenberg 1972, pl. III:2. Note that the stone "spindle whorl" in Dikaios 1962, fig.22:911 with a diameter of 7 cm., is far too large to have served this purpose and was surely a mace-head of identical proportions to that on fig.22:385. 5. Stewart 1962:354; Dikaios 1938:T38:8; Astrom 1972a:159, mace-head Type 2, fig. 19:3. 5a. Astrom 1972c:533 and fig. 71:22, 23; Dikaios 1969b, pl. 169:27, and probably 26 as well; Karageorghis 1965a, fig.16.82; Gjerstad 1935, pl. CLXXXIII. Note 3 additional mace-heads of unknown provenance, described as "barrel shaped", Courtois 1971.

Cylindrical mace-heads do not appear before M.C.II[1] and are most common in L.C.[2]

Type 3 mace-heads are difficult to date since the comparative material is frequently described under the heading of "spindlewhorls". Their occurrence is mainly restricted to the Neolithic and Chalcolithic periods.

Stone spindle-whorl

Sample: 4.

Material: Serpentine (antigorite), limestone.

Description: Type 1. S109. D. 4.2 cm., H. 2.1 cm., D. (hole) 0.61-0.64 cm. Conical, slightly carinated near base. Very narrow perforation. Undecorated.

Type 2. 4. Figs. 21, 23. S95, 106, 107, 313(?). Av. D. 4.6 cm., Av. Th. 1 cm., Av. D. (hole) 1.1 cm. Depressed conical, apex slightly flattened, hole often slightly biconical. Undecorated[3]. There are no published whorls of the same material and shape as Type 1, but conical terracotta spindle-whorls originate in E.C.I and remain in favour until the end of M.C. when they disappear completely[4].

No exact parallels exist for type 2 either. Astrom's "Low conical with upper side straight...." always carry incised decoration[5]. A likely antecedent for this type is the E.C.I "conoid with flat top and bottom" from Tomb 80 at Vounous. The material, described as pseudophite - light green flecked with white - sounds very similar to antigorite[6],

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1. Astrom 1972a:159. 2. Karageorghis 1965a, fig. 16:58, 133. These specimens are not perfectly cylindrical and lack the biconical perforations, nevertheless they do belong to this type. Cf. also a mace-head with slightly convex sides and biconical perforation: Gjerstad 1935, pl. CLXXXIII : 27; op. cit. p.588. Dikaios 1969b, pl. 169:24, pl.173:21 The latter is a cylindrical stone (D.5.8, H.4.5 cm.) with a depression in each side, in that respect similar to S150. Broken mace-heads with hour-glass perforations were found at Myrtou Pigadhes, but no drawings or photographs are published: du Plat Taylor 1957:79. 3. It should be noted that S16 is a borderline case between whorls and buttons, though closely resembling S107 it is slightly smaller and has been classified as a button. 4. Stewart 1962:349; Astrom 1972a:156, fig. 17. 5. Astrom 1972c:532, Type 5; for ivory and stone examples see Nicolaou 1972:100, no.20, p.102, no.40, p.88, fig. 8:239, 240. All are decorated. 6. Stewart 1950:46, pl. CI:c; Stewart 1962, fig. 103:15, from Vounous Tomb 80/1. For depressed conical terracotta whorls of M.C. date cf. op. cit. fig. 96:16-18.

and the shape is closer to our Type 2 than any other published whorl from the Early or Middle Cypriot.

Perforated stone (hammer)

Sample: 19.

Material: Andesite, gabbro, limestone.

Description: Type 1. Discoidal. 13. Figs. 21, 22. S52, 87, 100, 188, 102, 105, 142, 159, 170, 189, 261, 302, 324. Av. D. 14 cm., Av. D. of hole (where preserved) 2.5 cm. All but one example fragmentary. One face usually well flattened. S105, 159 and 302 previously used as querns. S105, 159 and 170, 189 incompletely pierced. Type 2. Small discoidal or elongated. 6. Figs. 21, 22. S12, 37, 141, 198, 224, 228. Av. D. 5.5 cm. Usually rather thick. S141 and 188, 198 incompletely pierced.

With the exception of S37, 159, 261, 324 and possibly 51 and 228 - which are badly weathered - the biconical perforation is always pecked and not drilled. It might be significant that 3 examples of Type 1 had previously served as querns, which perhaps suggests that a flat surface was a prerequisite, unless it was judged easier to perforate and shape such stones. Presumably the non perforated examples were abandoned or broken before completion, as both sides show an equal amount of pitting. A study on contemporary stone-working in New Guinea is relevant in this respect "... pecking is done alternatively on both sides, the stone being turned so that the depth of the hole on each side is kept approximately equal...."[1].

Perforated discs occur in Cyprus from the Neolithic[2] to the L.C.[3]. Dikaios classifies the objects as hammers without giving any specific reasons, i.e. signs of wear on the circumference or polishing of the

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1. Blackwood 1950:34. 2. Dikaios 1962, fig. 22:528, 1096 from Khirokitia; fig. 47:83 from Sotira; Dikaios 1936, fig. 16:A1181, from Erimi, which is an excellent example labelled "spindle-whorl". The size would preclude this usage (D.7.8 cm., Th. 4.5 cm., D. of hole 1.5 cm.) and suggests another function. The same is true of the "spindle-whorls" of fig. 61:26, 27, which have diameters of 9.5 and 7 cm. 3. Dikaios 1969b, pl. 126:30, 31; pl. 153:32, 33; pl. 154:20; pl. 159:21 etc. A total of 8 is published.

central perforation. It would seem that the attribution is inferred by association alone[1]: "Hammerheads of limestone. Fragmentary. Rounded in shape, with the centre bored from both faces. They both come from Area III floor .... on which evidence of copper smelting, including terra-cotta tuyères, was laid bare. The hammers were, therefore, probably used in crushing the ore[2] before smelting." The hammers vary from 10 to 15 cm. in diameter and average 5 cm. in thickness.

Several perforated stones come from Apliki[3]: "Maceheads. Spherical stones with central hour-glass boring. Av. diam. 14 cm... Several other bored stones may have been loom-weights, but their use is uncertain." These objects are too large, cumbersome and heavy to have served as mace-heads. More likely they were used as hammerstones for crushing ore. A so-called "mace-head" published by Astrom[4] from Idalion, has a diameter of 13.8 cm. and a thickness of 5 cm., and should also be reclassified as a hammer.

Similarly perforated stones, but of elongated shape, come from E.B. III levels at Tarsus[5] where they are described as hammerheads. Period J at Hama[6] has a series of basalt pierced discs with diameters from 13 to 15 cm. No suggestions as to their usage were made. Representatives of this class are common throughout the Middle East, so we need only mention a few relevant sites in this connection.

Perforated hammer-stones associated with other tools used for preparing copper ores came from Timna[7]. Unfortunately no drawings or photographs with scales are published.

A large number of perforated and semi-perforated stones comes from Myrtos[8] and it is suggested they were intended as weights, but not necessarily loom weights. Here we have evidence for a different

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1. Dikaios 1969a:231. 2. This was probably matte or semi-refined ore. See p.143. 3. Du Plat Taylor 1952:163. 4. Astrom 1972c, fig. 71:24. 5. Goldman 1956:273, fig. 417:67-71. 6. Fugmann 1958:49-85. 7. Rothenberg 1972:29, 63, fig. 20. 8. Warren 1972:237, fig. 104-106.

function, because Warren would certainly have noticed any pitting or signs or wear on the circumferences. He states that "The biconical holes would make the stones quite unsuitable for hafting as weapons or tools"[1]. Such was the present writer's opinion with regard to the pierced stones from Phaneromeni, until experimentation proved this surmise to be incorrect. If the end of the haft is ⎍ shaped, a very secure fit can be achieved, and the head will not wobble, although stones such as 213 on fig. 105[2], with an extra wide hour-glass perforation would obviously be difficult to haft.

S12, 261, 302, 324 and M11[3] from Phaneromeni have definite wear patterns on their circumferences: S302 is badly chipped and was obviously subjected to heavy hammering; S12 and 261 are similarly damaged on the edges, though the possibility of this occurring after they were broken in half cannot be ruled out. The pitting on the apex of S324 is clearly from use as a hammer, a suggestion which is corroborated in several cases (see fig. 21: S261, 324) by signs of wear - i.e. polishing - on the apex of the hour-glass hole. This can only be the result of friction with a wooden shaft, since a rope would have produced a regular polish on the sides of the perforation as well. The four most representative hammers - S159, 261, 302, 324 - of igneous rock and of similar proportions, would have taken hafts of about 2.5 cm. in diameter, similar in size to many contemporary tool handles.

There can be little doubt that most of the perforated stones from Phaneromeni were intended as hammers, whether heavy-duty (Type 1) or light (Type 2). There is little reason to suppose that these objects were weights, unless resistance to stress was a prerequisite. Terracotta

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1. Op. cit. p.216. 2. Op. cit. 3. Excavated by Weinberg in Tomb 5c, no.10. Greenish stone, L. 5.3 cm., Th. 3.8 cm., W. 7.5 cm., D. of hole 2cm. Pecked hour-glass perforation, no signs of wear. Though smaller, it closely resembles S324. The circumference shows definite signs of use.

weights, of which we have several examples[1], would be far less time-consuming to manufacture.

Two Type 2 perforated stones (S37 and 224) might have been heavy spindle whorls, as they seem well suited in shape and size for this purpose. Experimentation with S37 indicates that its asymmetrical shape is no hindrance to obtaining a smooth spin.

Perforated stones were quite common at other B.A. sites in the region. The 19 examples recovered by the survey were concentrated at 3 sites, Erimi Kafkalla especially (See Tab. 7 , figs. 41, 43, 44).

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Button or toggle

Sample: 5.

Material: Serpentine (Antigorite), felsite.

Description: Type 1. Depressed conical or discoidal: 2. Figs. 21, 23. S16, 62. From 2 to 3.5 cm. in diameter, perforations from 0.8 to 1 cm. in diameter. Undecorated.

Type 2. Discoidal with vertical edges. 5. Figs. 21, 23. S111, 192, 214, 355, 359. From 2.5 to 3.5 cm. in diameter, perforations from 0.6 to 1.3 cm. in diameter. S192 decorated with shallow drill holes on both faces and the circumference.

These discs might arguably have served as spindle-whorls, and in order to verify or disprove this assumption, their viability as such was tested by experimentation. The whorls are too small and light - S111 especially - in relation to the wooden spindle required to fit tightly in the central perforation[2]. A spin with good momentum, which is necessary for twining goat hair or wool, is impossible to achieve with such whorls. It might, however, have been possible to spin flax or linen both of which are less resistant to twining[3].

Numbers of depressed conical spindle-whorls with similar diameters occur at Enkomi Ayios Iakovos in Level IIIA, but are not recorded earlier[4].

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1. See chapter on Terracottas p.208 . 2. With average diameters of 1 cm. bone is out of the question and ivory is not attested in Cyprus until L.C. (Astrom 1972c:608). 3. Pieridou 1967. 4. Dikaios 1969a.

They are well attested elsewhere in Cyprus during the advanced stages of the L.C.[1] So far as can be ascertained, all flat depressed whorls from the L.C. are decorated, and all have small (0.4 to 0.5 cm. in diameter) central perforations which could accomodate bone or ivory spindles. Indeed, many whorls have been found complete with spindle. In conclusion, the diameter of the central perforation is the determining factor for the classification of small discs as spindle whorls or as some other object.

A more plausible explanation for both categories is that they were intended as buttons or toggles. The button, threaded on a knotted cord, could then be inserted in a buttonhole or loop attached to the garment. This interpretation of small, light "spindle-whorls" was reached independently of Tsountas' comments on the subject[2]. Astrom disagrees with the interpretation but fails to take into account the varying size and weight of the discs[3]. The smaller ones are simply too light to have been functional as whorls.

Warren[4] recovered 8 pierced stone discs from Myrtos which, in his opinion, were too light to have been whorls, but might have served as pendants. It has also been suggested that many Mycenaean "buttons" were in fact weights for dresses or for dress accessories[5]. This is a likely assumption, especially when they are found in groups.

To emphasize the present state of confusion, Nicolaou[6] describes a black (?) andesite object with convex top and flat bottom as a button, whereas on the same figure an almost identical ivory piece (no.240) is labelled spindle-whorl! The roles should be reversed, the heavier button is more functional as a whorl.

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1. Cf. Karageorghis 1974:76, pl. LXXXIX:236, of L.C.III B date. There are also stone whorls with similar proportions and decoration from Episkopi Bamboula (Benson 1972:134, pl.37:B1504, 1505) of L.C.IIIA date. Cf. also: Schaeffer 1971:111, fig.26:4 of similar date, Astrom 1972c:532, Type 5b and Nicolaou 1972:105 for 2 L.C.II specimens. 2. Tsountas & Manatt 1897:174. Many steatite "buttons" biconical or flattened are published from the Late Helladic cemetery excavated by Blegen (1937). 3. Astrom 1972c:585. 4. Warren 1972:230. 5. Iakovides 1977:113 ff. 6. 1972:63, fig. 8:18.

Stone weight. Barrel-shaped

Sample: 2. S53, 151. (Attributions questionable).

Material: Andesite, limestone.

Description: S151 is a small barrel-shaped object of 165gr. (fig.25). S53 is larger and cylindrical with concave sides and one extremity missing. Present weight 1855 gr., estimated weight when intact: ca. 3000gr.

Unfortunately, S53, a surface find, is unique. Cylindrical with convex sides, very carefully shaped and slightly smoothed, it is unlikely to have been a mere pounder. There are no signs of wear from pounding or rubbing, and with an average diameter of 8 cm. it is too large to hold comfortably in hand: it also somewhat resembles S151 in shape. One end is missing which complicates interpretation, but the longitudinal section is sufficiently well preserved to show a distinct narrowing towards the damaged extremity, to the same degree as in the other direction. No comparable barrel-shaped pounders have been published from Cyprus, or elsewhere, for that matter.

Small elongated barrel-shaped weights are common in the Middle East, and S53 might be a larger specimen of this class. There are no parallels in Cyprus for S151 either, but as above mentioned, the shape is common in the Middle East[1].

Stone weight with suspension hole

Sample: 12. Figs. 24, 25, 26. S72, 78, 162, 173, 177, 203, 348, 349, 350, 360, 414, 415.

Material: Limestone.

Description: Irregular shaped, perforation near one edge. With the possible exception of S72, all the holes are pecked and not drilled. The hole of S414 is apparently natural.

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1. For but one site see Boehmer 1972, taf. LXXXIV:2196-2213.

Respective weights:

S360	1030gr.	Minimum	diam.	of hole:	1.7 cm.	Intact
S72	1550gr.	"	"	"	1.1 cm.	"
S203	1650gr.	"	"	"	0.8 cm.	"
S173	3000gr.	"	"	"	0.9 cm.	"
S162	5940gr.	"	"	"	2.0 cm.	"
S177	8225gr. (8500gr.)	"	"	"	2.1 cm.	Damaged, original ca. 8500gr.
S348	6870gr. (8800gr.)	"	"	"	2.5 cm.	Damaged, original weight ca.8800gr.
S78	9375gr.	"	"	"	2.7 cm.	Intact.
S415	10025gr.	"	"	"	1.4 cm.	"
S350	8320gr. (10320gr.)	"	"	"	1.5 cm.	Broken, original weight ca.10320gr
S414	13000gr. +	"	"	"	1.0 cm.	Intact
S349	13000gr. +	"	"	"	2.0 cm.	Intact

The above list fails to detect any obvious grouping by weight, which is probably to be expected with such a small sample.

The earliest published weight with suspension hole is of M.C.II-III date[1]. Weighing 1840gr. it compares quite favourably with S72 and 203. The stone "loom weights" of the L.C. are smaller and lighter, and clearly belong to another category[2].

Though considerably larger, the Phaneromeni weights closely resemble those from Myrtos published by Warren[3]. Some of these were certainly loom weights, but the function of the remainder is unknown. Ten stone loom weights came from Period J and Hama, and with an average diameter of 10 cm. or less, they are a little lighter than our smallest weight[4].

The Phaneromeni stones would have been satisfactory for weighting the warp threads if vertical looms were in use[5], and the evidence would suggest that they were since smaller loomweights are well attested here (TC6, 50, 51) and elsewhere in Cyprus[6]. S79 was definitely suspended because the hole is smooth and worn on the top underside and nowhere

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1. Astrom 1972a:159, 189,fig. 19:16. 2. Astrom 1972c:533, pl.71:21. 3. 1972, fig.105:217, 218. 4. Fugmann 1958, fig. 62, 64, 74, 75, etc. 5. For warp threads cf. Weir 1970, pl.24. Here the weights are comparable in size to the larger stones from Phaneromeni. Cf. also Hodges 1970:129-130. 6. Astrom 1972a, fig.17:3-6.

else. Had the stone served as a tether for a small animal, the signs of wear should be evenly distributed also, on the sides of the hour-glass perforation.

The division between these possible loom weights and small tethering stones is obviously an arbitrary one. Stones of around 20kg. or more have been classified in the latter category.

Stone weights with suspension holes were, with the exception of Erimi Kafkalla, recorded at all the major sites surveyed, but were surprisingly rare in view of their conspicuous and indestructible nature. (See tab. 7)

Tethering stone

Sample: 6. All in situ at Settlement A.

Material: Limestone.

Description: Large riverstones sometimes showing signs of intentional shaping. Av. L. 64 cm., W. 49 cm., H. 24 cm. Av. D. of hole 3.2 cm. By definition, all have a roughly pecked hour-glass perforation near one edge, from 2.3 to 5 cm. in diameter.

Two stones were built into a wall of Room 10, but elsewhere they stood in the middle of habitation areas (Room 10) and sometimes appear to have served as post supports (Rooms 13 and 16)[1]. So far as can be determined there are no signs of wear or polishing on the perforations, a feature that would have lent support to their present interpretation. Those stones set into walls could have retained their function as hitching points if a recess were made on either side of the hole; a practice noted in traditional Cypriot architecture[2].

There are no published examples of this type from Cyprus, and for comparative material we must rely on the survey. Tethering stones are indeed a diagnostic feature of E.C.-M.C. sites in the region: at

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1. Note arrows on fig. 7 showing location of the tethering stones at Settlement A. 2. Personal observation in an abandoned house north of Kandou in the Kouris valley.

Evdhimou Stympouli and Beyouk Tarla, for example, 14 such pieces were recorded (see tab. 7 and fig. 46:1-5). Typically they are irregular discoidal or elongated in shape and the perforations are always pecked. An approximately cylindrical stone, 61 cm. in length and 28 cm. in diameter, from Evdhimou Stympouli (fig. 46:6) had a shallow groove cut around the narrow end, which suggests it might have served as a hitching block. To date no similar pieces have been recorded and the attribution is purely hypothetical.

Stone bowl

Sample: 1. S251.

Material: Andesite.

Description: Fig. 26. Max. diameter 13.5 cm. D. of rim 11.5 cm. H. 7.4 cm.
Hemispherical, slightly inverted rounded rim, flattened base.
Surface pecked, well smoothed inside, possibly from wear.

Quite a similar, though larger, bowl was excavated at Erimi Pamboula[1] but the best parallel comes from Neolithic Khirokitia[2].

Bowls are apparently uncommon, and, surprisingly, no more examples occur until Level I at Enkomi Ayios Iakovos[3]. It is larger than S251, but it too has the interior slightly ground, which suggests they both might also have served as mortars.

A single andesite bowl is recorded at Anoyira Peralijithias (fig.24: 619/11). It is comparable to S251 in size and shape, though slightly more shallow.

Mortar

Sample: 29.

Material: Limestone.

Description: With the exception of S166 and 252 the cavity is rough and

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1. Dikaios 1936, fig. 12:B1152. 2. Dikaios 1962, fig. 9:814.
3. Dikaios 1969a:231; Dikaios 1969b, pl. 126:25, 153:34.

pitted. The shape is invariably that of an unaltered riverstone.
Type 1. 11. Figs. 25, 26. S79, 161, 163, 165, 166, 227, 243, 276 347, 388, 399. Deep, large, irregular oval, spherical or cubic.
Type 2. 4. S7, 174, 216, 391. Shallow irregular, small to medium.
Type 3. 3. Fig. 25. S184, 252, 305. Shallow, small.
Type 4. 2. Fig. 26. S8, 164. Elongated with hollow at one extremity.

The rim of S252 (Type 3) is blackened from fire, indicating that it might have served as an oil lamp. Had it been a brazier, the cavity would show overall signs of burning.

The mortars of Type 4 must have been partially countersunk into the floor for stability. They are, in fact, miniature pedestal basins (see below).

Mortars are common at Khirokitia[1], Sotira Teppes[2], Erimi Pamboula[3] and as to be expected they occur in the E.C.[4], M.C.[5], and L.C.[6]. Eighteen mortars of types noted at Phaneromeni were found on the survey at Evdhimou Stympouli and Beyouk Tarla in particular (see tab. 7 and fig. 46 :7 -11).

Stone basin or trough

Sample: 3. S55, 430, the other in situ. Fig. 26.

Material: Limestone.

Description: The shape and size of basins or troughs sets them aside from mortars Types 1 or 2. The 2 examples from Phaneromeni are quite different in shape and size and certainly served different functions. The hollow, by definition, is rough or pitted, which indicates that basins never served as mortars for grinding or pounding.

S55 is a small fragment of a large flat bottomed straight sides basin.

S430 has a shallow club-shaped or piriform depression cut into one face of the oval stone. There is no appreciable lip on the narrow extremity which suggests liquids were drained or poured from this end. The shape is without parallel in Cyprus.

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1. Dikaios 1962, fig. 16-17. 2. Op. cit., fig. 45:1- 6. 3. Op. cit., fig. 60. 4. Op. cit., fig. 103:17-18. 5. Astrom 1972a, fig. 19:17-18. 6. Astrom 1972c:536.

The remaining trough or basin was discovered in situ in the corner of Room 8. It consisted of a shallow rectangular depression crudely pecked from a similarly shaped stone.

Although basins or troughs of this type are only once noted in the literature - in connection with Alambra Mouttes[1] - such utilitarian objects were surely in use from the earliest periods of occupation of the island. The L.C. "basins" are all more elaborate and often endowed with lug-handles or feet[2].

Large stone basins of 80 cm. or more in length with runnels or spouts were recorded at Evdhimou Beyouk Tarla and Anoyira Peralijithias. That of fig. 46:10 shows a large pierced lug at one end.

A shallow trough with 2 runnels off one end from the same site (fig. BT S48) bears a vague and probably coincidental resemblance to a stylised bucranium.

Pedestal basin

Sample: 3. All surface finds left in situ. One in Area A, two in Area G.

Material: Limestone.

Description: Fig. 42. Large boulders sometimes with evidence for rough shaping. From 35 to 60 cm. high, with a circular or oval basin cut into one face. Three examples from Phaneromeni are of the following dimensions:

1. Area A. W. 62 cm., Th. 55 cm., H. 60 cm., D. of basin approx. 37 cm. Max. depth of basin 8 cm.
2. Area G. W. 50 cm., Th. 40 cm., H. 35 cm., D. of basin 24 cm., Max. depth of basin 8 cm.
3. Area G. W. 48 cm., Th. 40 cm., H. 44 cm., D. of basin 32 x 22 cm. Max. depth of basin 20 cm.

A study of the inner surface of the basins shows they are rough and pitted, however carefully and symmetrically shaped, which proves they never

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1. Coleman 1977:75 "Among other finds (in the rooms) are ... stone troughs .....". 2. Astrom 1972c:544.

served as mortars, in the true sense of the term, but were intended as receptacles.

The attribution of the basins remained very questionable until the discovery of similar pieces at Evdhimou Stympouli, Alatomi and Beyouk Tarla, thereby reinforcing the likelihood of a B.A. date. The examples from Phaneromeni are weathered or badly damaged, so by far the best representatives of the class came from the survey (fig. 42:1-7). A curious characteristic of two such basins from Stympouli is that shallow depressions 18 cm. in diameter were pecked on one side. These are identical to the post supports at Phaneromeni and are presumably the result of secondary use (fig. 46:8)[1].

Parallels for pedestal basins in Cyprus are lacking and since all the representatives of the group are surface finds, they may only be dated by association.

Saddle quern

Sample: 42. 4 in situ.

Material: Andesite, grano-diorite, gabbro, limestone.

Description: The inaccurate, old fashioned though descriptive term "saddle quern" has been preferred in this typology to the newer terminology proposed by Hole and Flannery[2].

Type 1. 8. Figs. 24, 27. S3, 181, 235, 239, 275, 277, 289, 390. Large, one face concave, the other flat. Av. L. 45 cm., W. 26 cm., Th. (taken in the middle) 9 cm. Type 1 accounts for less than $\frac{1}{3}$ of the assemblage.

Type 2. 28. Figs. 24, 27. S56, 57, 71, 77, 144, 146, 154, 204, 255, 270-274, 278, 311, 318, 352, 353, 400, 401, 404, 405, 406, 407, 408, 409, 423. Elongated with rounded ends, usually with one side convex and the other slightly concave. The transverse section of the work surface is also concave with the edges worn down. Av. L. ca. 30 cm., W. ca. 16 cm., Th. (taken in the middle) 6 cm.

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1. In fig. 46:8 the basin lies on its side. 2. Hole and Flannery 1969:170.

As anticipated, saddle querns were by far the most common artifact recorded on the survey. Large, virtually indestructible and easily recognised to the trained eye, they were often the first evidence for a settlement to be recognised (fig. 46:9).

Although the ratio of 1:3 between quern types at Phaneromeni is only noted at 3 out of 12 sites surveyed, the larger Type 1 is generally less common. The dependence on igneous rock noted at Phaneromeni is reduced at other sites with a less plentiful supply, where limestone is particularly common for Type 1 querns. The grand total of 437 querns recorded by the survey is ample evidence for their important role in the B.A. economy.

It would be an error, however, to assume that saddle querns are diagnostic period indicators of B.A. or earlier sites and that the Iron Age saw the wholesale adoption of more sophisticated forms of grinding equipment. The most eloquent argument for their continued use is an Archaic II terracotta genre scene from Kourion that shows a saddle quern in use[1].

Jar cover ?

Sample: 3. S341, 396, 396a, (322 Different shape, attribution very questionable).

Material: Andesite, limestone.

Description: Fig. 27. Almost perfect discoid with one face flat and the other convex. All show some degree of shaping. From 10 to 10.8 cm. in D.; 3 to 4.5 cm. Th.

Since none of these objects were found in association with smashed pottery, let alone covering the neck of a jar, their tentative attribution as stoppers must remain in doubt.

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1. Ohnefalsch-Richter 1893, pl. CLXXIII:19,h, from Kourion. For an excellent colour photograph of the same scene cf. Spiteris: 1952 : 153. (Arcaic II).

The lack of distinctive wear patterns suggests they were not intended as tools for hammering or rubbing[1]. The Phaneromeni material and the 7 pieces collected on survey (fig. 41) are noticeable for their uniformity in size, with diameters of 8.1 to 12 cm. (Av. 10.1 cm.) and a thickness of between 2.5 and 5.6 cm. (Av. 3.5 cm.).

There is only one object of similar manufacture (D. 5.4 cm.) from B.A. levels in Cyprus[2], a fact which is difficult to reconcile with an artifact type of such obvious utility, if our interpretation is correct. If 7 surface finds came from the Episkopi region (fig. 41) it is somewhat unlikely the type was totally unknown at other early L.C. settlements, such as Episkopi Pamboula and Enkomi Ayios Iakovos. Maybe small bowls were used instead for the same purpose, since there are no terracotta jar stoppers of comparable size.

By analogy with contemporary practice in Cyprus and the Near East, these stones would be ideal as jar covers as protection against insects and rodents, and they are classified as such. Corroboration or refutal of this interpretation will probably be supplied by future archaeological research on the Cypriot B.A.

It has been suggested[3] that some of the jar covers recorded on the survey were opus sectile, used as paving stones in the Byzantine period. Whereas this function cannot be disproved at all sites, at Phaneromeni, Evdhimou Beyouk Tarla and Stympouli a pre-Byzantine date is certain. In view of the homogeneity of the entire group, it seems likely that all belong to the B.A.

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1. S341 is well smoothed on its concave side, possibly from rubbing, but this seems to have been a shaping process rather than a wear pattern from use as a tool. 2. Gjerstad 1935:541, (no.329); Stewart (1962, fig.104:7) publishes a flattened disc from Vasilia T.1, 12 cm. in diameter and 1.8 cm thick. It is described as a jar cover and as such it is of similar proportions to those from Phaneromeni. Unfortunately we have no information on the circumstances of discovery (cf. Stewart 1957:2). Most L.C. "Lids" (Astrom: 1972c:544) are quite different. That from Episkopi Pamboula was a pithos cover. 3. I am obliged to Dr. Ino Nicolaou for this information.

Work surface (?)

Sample: 5. S180, 320, 330, (?), 410, 1 *in situ*.

Material: Andesite, limestone.

Description: Rather a heterogeneous group of flat or trapezoidal stones hypothetically interpreted as work surfaces. In some instances the main face shows signs of wear (S320, 410), in others it remains rough (S330, *in situ*, Room 2). The largest example of this class, unfortunately a surface find (S180), has a flat smooth surface 58 cm. in diameter; the others are all smaller.

Pivot stone

Sample: 1. S351.

Material: Limestone.

Description: Large oval stone initially intended as a mortar, with secondary use as pivot stone. Fig. 27 L. 34 cm., W. 25 cm., H. 22 cm. The pivot has two separate positions, respectively 6 and 9 cm. in diameter, with the diagnostic circular striations clearly visible. (fig. 27, S350).

Though pivot stones are only once mentioned in the Cypriot literature on B.A. sites[1], there is little doubt they were typical architectural accessories, and the dearth of excavated E. and M.C. structures is the reason for this apparent absence.

Unless pivot stones are discovered in place along side a doorway, careful observation is necessary to recognise the frequently weathered but all-important wear-pattern of horizontal striations, otherwise they are easily confused with small mortars.

Astrom and Gjerstad's excavatios at Alambra and Kalopsidha[2] failed to recover any such stones near doorways and the more recent and extensive work by Cornell University[3] was equally unproductive.

The important discovery of a pivot stone *in situ* at Dhali Kafkallia, Building 12[4], proves their existance in the M.C. period at least, although it is probably only a question of time before earlier examples

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1. Overbeck and Swiny 1972:28. 2. Astrom 1966; Gjerstad 1926.
3. Coleman 1977. 4. Overbeck and Swiny:28.

are recovered. The survey was fortunate to record 5 pivot stones, 3 from Evdhimou Beyouk Tarla (fig. 45, 11:27, 28), the remainder from Evdhimou Alatomi and Erimi Kafkalla; the latter is unusual in that an igneous rock was chosed instead of limestone. Evidence for pivots or hinges may be deduced from the thresholds at Evdhimou Stympouli and Anoyira Peralijithias, which, in 4 instances, are complete with pivot holes (see below).

Threshold (?)

Sample: 5. All recorded on the K.S.U. survey and left in situ.

Fig. 47:1-5, 42:2.

Material: Limestone.

Description: Approximately rectangular in plan and section, usually with a narrow ledge running the full length of the upper surface. 4 out of 5 stones have pivot holes at one or both extremities and no. 5, fig. 47 also has a bolt (?) hole. No. 2 has no pivot holes but an upturned end, as if to support a door-jamb. This interpretation is somewhat weakened by the presence of a horizontal biconical hole on the same piece, which is diffcult to equate with a threshold, unless judged necessary for steadying or securing the hinge or fastening the door. The thresholds vary in length from 114 cm. to 160 cm.

When first noted at Anoyira Peralijithias, these well shaped objects were interpreted as being too sophisticated for a M.C. or early L.C. date.

The subsequent discovery of similarly shaped stones at Evdhimou Stympouli strengthened the possibility of a M.C. date, but could arguably be interpreted as a coincidence had the remains of a 3 x 10 (Zenet) pattern not been pecked on No.1 (figs. 47:1, 42:2) from Stympouli. No L.C. remains are known in the neighbourhood of that site and, to date, there is no evidence for the game in Iron Age Cyprus, so the thresholds - if indeed they are such - must be of M.C. manufacture.

This attribution, in effect raises more questions than it solves,

particularly in connection with Peralijithias. If its inhabitants, and to a lesser extent those of Stympouli, were able and willing to carve such architectural elements, it is surprising that their remaining building techniques and materials are so consistently primitive. Even a sparing use of ashlar blocks might be expected, yet with the exception of Peralijithias and possibly Dhali Kafkallia[1], even a sparing use of ashlar blocks remains unknown until L.C.IIIA[2].

Unidentified

Sample: 2. S91, 367.

Material: Andesite, limestone.

Description: S91. Fig. 27. Almost perfect ellipsoid. Fine texture, light buff, smooth surface. A groove (2mm. wide, 1.5mm. deep) tangent to a shallow drill hole (D. 7.5mm. depth 2mm.). Meanders around the circumference. It would appear that the hole was drilled before the cutting of the groove, as suggested by the groove starting from the hole at right angles to the longitudinal axis. Then it increasingly deviates from the lateral axis, until it was realised that both ends of the groove would not meet. At this point it veers sharply to complete the circumference.

A smaller ellipsoidal stone with transverse groove around the middle comes from Byblos[3] and is believed to be a weight. Several other ellipsoidal stones had longitudinal grooves[4]. A limestone ellipsoid with a transverse groove was excavated in Level J5 at Hama[5]. No interpretation was suggested.

S367. Large flattened oval disc, with both faces very smooth, one slightly concave the other flat. One side slightly raised, as if from use as a saddle quern. Ends damaged and flaked from heavy pounding or hammering. The concave face has a shallow, near circular, pecked area, slightly off centre. The other face has a deeper circular

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1. Overbeck and Swiny 1972:25, 27. 2. Astrom 1972b:30. 3. Dunand 1958:799, No. 15648. 4.Dunand 1954: 376, No. 10574 and Fig. 412: 11597. 5. Fugmann 1958:54.

pecked depression in the centre. L. 23 cm., W. 13.5 cm., Th. 4.1 cm.

A stone of similar shape and proportions was recorded at Anoyira Peralijithias, but nothing comparable has been published from Cyprus.

JEWELLERY

Pendant

Sample: 8. Figs. 21, 28. S13, 17, 35, 195(?), 210(?), 316 356.

Material: Serpentine (antigorite).

Description: Type 1. S17 Oblong and flat with biconical perforation. The shape is that of an unaltered river pebble.

Type 2. Miniature. Rectangular and flat. Perforation at one end.

Type 3. S35, 362. Triangular or bell shaped with flat rounded angles. Side opposite perforation has transverse grooves.

Type 4. S314 Approx triangular with rounded ends or irregular (S316, 356).

Type 5. Attribution very questionable. S195 flat rectangular? (one end missing). Three drilled perforations roughly following longitudinal axis. S210, flat, probably semicircular, with one end missing. Six biconical drill holes, with no signs of wear from suspension. The only evidence suggesting that both were pendants is size and suitability of material; furthermore a utilitarian function for the closely spaced holes is unlikely. Their purpose was surely decorative.

Type 1. As might be expected this simple yet attractive form of pendant is common in the Neolithic and Chalcolithic periods[1]. More surprising is the lack of similar pendants in the Bronze Age. Only one parallel exists, and this comes from nearby Bamboula[2]. Maybe they were not considered worthy of being included in funerary offerings? Similar pendants are known from Bylos[3].

Type 2. Associated with a necklace of miniature beads. Large examples of subrectangular pendants come from Neolithic Sotira[4] and

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1. SCE IV, IA, fig.48:302, 684, 266, 17, 14, 11, etc. from Sotira; Dikaios 1936:54 pl. XXIX:2, for 8 examples of similar pendants from Erimi Pamboula. Watkins 1969; photograph 26 for a similar pendant from Philea Drakos A. All these objects are unaltered river pebbles. 2. Daniel 1938:269 "A rough pebble of steatite pierced at one end". Cf. also Benson 1972 for same pendant? B1457, long roughly oval, flat pierced at one end.
3. Dunand 1939, fig. 223:3803. 4. Dikaios 1961, pl.90 and 102:2a and 12.

Chalcolithic Erimi[1] but not attested later.

Type 3. No exact parallels for this shape exist, though a flat pierced triangular pendant with serrated sides and rounded bottom, comes from Erimi[2].

Type 4. If we are correct to interpret S195 and 210 as fragmentary pendants, then Sotira produced an excellent antecedent[3].

Bead

Sample: 2.

Material: Serpentine.

Description: Type 1. S110. Figs. 21, 28. Biconical.

Type 2. S108. Figs. 21, 28. Ovoid.

The beads of type 1 and 2 probably belong to the same necklace.

Type 1. Biconical beads are found from the Neolithic period onwards,[4] though prior to the Phaneromeni excavation none have been recorded for the Early and Middle Cypriot. They are most common in the L.C.[5]

Type 2. Ovoid beads are less common. Rather poor examples come from Khirokitia[6] and one comes from Sotira[7]. Astrom does not include ovoid beads in her corpus[8] and the closest parallel from Enkomi[9] is a carnelian bead with convex edges.

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1. Dikaois 1962, fig. 62:26. 2. Dikaios 1936, pl. XXIX:685. 3. Dikaios 1961, pl.90 and 102, No.672: "Pendant, flat with convex sides, line of 5 perforations arranged along its longitudinal axis, picrolite L.5.7. cm. 4. Dikaios 1962 fig.27:1117. 5. Karageorghis 1965a, fig. 30:37, for an example contemporary with Settlement A; Astrom 1972c, pl. 71:36 and p.540 for a corpus of L.C. biconical beads, excluding Enkomi; Dikaios 1969b, pl.126:44, 46: Level I. Pl. 127:35, 37: Level IIA. Pl. 128:19: Level IIB. Biconical beads are also found in small quantities in levels IIIA, B and C.; Benson 1972, pl. 37(B1509, 1510)* 1514, 1515, 1516, 1519, etc. These objects are labelled as spindle whorls, but with an average height of 2 cm. and diameter of 1.9 cm. they are too small for this purpose. Out of the first 10 whorls published, 6 are beads! Though the diameter of the perforation is not mentioned, those from Bamboula on display in the Curium Museum have holes only 2 to 3mm. in diameter; Cf. also Astrom et al 1976:21, pl. XXIV for 13 unplaced biconical stone beads. 6. Dikaios 1962 fig. 27:887, 888, 329. 7. Dikaios 1961, pl. 90:9. 8. Astrom 1972c. 9. Dikaios 1969b, pl. 161:41.

* Not illustrated.

Necklace

Sample: 5 necklaces with 10 to 1086 beads. Fig. 28. S11, 15, 36, 60, 80.

Material: Quartz (black, cairngorm variety), calcite (white), quartz (carnelian?).

Description: Minute cylindrical, or disc-shaped. Biconical or cylindrical perforations, depending on width of bead.

S60 is associated with a broken black quartz spacer, with 2 holes remaining.

Identical bead necklaces are known from the Philia Culture[1] and from the second burial in Tomb 5 at Kalavassos[2] which should be redated to the Middle Cypriot. Beads of this type are used as spacers for larger faience beads[3]. Miniature beads do not seem to be attested in Late Cypriot.

Earring

Sample: 4. S24a and b, S25a and b. Figs. 21, 28.

Material: Serpentine (antigorite).

Description: Elongated rectangular plaque pierced at one end. Found in pairs either side of the skull. The holes show signs of wear, proving the earrings were suspended with perishable material, since no metal attachments were discovered. The holes are gouged and not drilled.

The only known parallels for this type earring come from an unpublished R.P.III Mottled horizon tomb group in Limassol. Here also they were found near to the skull.

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1. Stewart 1962:260 and fig. 105:1-5. 2. Karageorghis 1958 fig. 7:20, pl. X:C. 3. Gjerstad 1934:82, fig. 38:8, pls. XXVI:2 and CXLIX:19 and p. 320 pl. LXII:1.

Toggle ?

Sample: 1. S139. Fig. 21, 28.

Material: Serpentine (antigorite).

Description: Cylindrical with flattened ends and groove around middle.

There do not appear to be any published examples from Cyprus. Excellent parallels, however, come from the Hittite and late 1st. Millennium B.C. levels at Alishar Huyuk[1].

Unidentified (Jewellery(?))

Sample: 12. Figs. 21, 28.

Material: Serpentine (antigorite), felsite (202).

Description: The small group of worked but unidentified serpentine objects will be treated as a unit.

Type 1.2.Irregular, cylindrical, (S153, 202). The latter has a shallow drill hole (D. 2.5 cm.) close to each extremity. One shows a projecting central core, which indicates the use of a hollow metal bit.

Type 2.1.Cylindrical, one end rounded, the other missing. Decorated with 5 transverse grooves, that closest to the rounded end being more pronounced. Quite suitable as a toggle; (S258).

Type 3.1. Small plaque with carefully smoothed parallel faces and one finished edge. The others are damaged. (S222).

Type 4.1. Oval with one end flattened. Carefully shaped. Scrath marks very visible. Possibly an unpierced pendant or amulet. (S81).

Type 5.5. S424. Subrectangular pebble with all edges apparently intentionally flaked. Slightly worked small fragment (S148, 354, 387) or intact pebble (S357, 358).

Type 6. 2. Disc. S312, 315 (?). Unperforated.

The size, shape and material of the above objects would suggest that they were all probably intended as personal ornaments.

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1. Von der Osten 1937b fig. 97, and 1937a fig. 264.

Gaming stone. Zenet

Sample: 28.

Material: Limestone, calcarious sandstone.

Description: Type 1. 24. Figs. 29-32. S19, 21, 136, 137, 172, 179, 193, 194, 231, 232, 233, 244, 279, 280, 319, 392, 402, 403, 412, 413, 416, 431. 2 in situ.[1] Flat elongated, irregular, subrectangular or oval. The characteristic feature and common denominator of each stone is 3 approximately paralled rows of 10 shallow depressions, cut into one or both faces. Shape and size of the stone might vary, but in each instance the basic pattern is easily extrapolated. If both sides are worked (fig. 28, 30, 31, 32; S137, 193, 172, 179, 231, 244, 412, 413, 416) one pattern is always more carelessly executed, incomplete or partially effaced, but no variation in size or number of holes is recorded. The spirals of S179, 244, 280 and 281 (figs. 35, 36) are exceptions, therefore will be treated separately. When the surface of the stone is well preserved, the percussion marks within each depression are quite clear, implying that the use of a drill - both neater and more accurate - was seemingly considered unnecessary. With reference to damaged stones, the overall length and width of the rows could be computed from the remaining consecutive depressions, of which a minimum of 5 was always preserved. Nine stones have, in addition to the 30 hole arrangement, a large oval or circular depression at one end or to one side, and another 5 have 2 such additions. The criteria governing the position of these complementary hollows is apparently the size and shape of the stone rather than any inherent pre-established pattern. If the stone is elongated the hollows are placed at one end, but if broad and irregular, they are found to one side.

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1. This is far from the total count of such stones from Phaneromeni. I have collected a number of surface finds which are not included in the sample: 3 came from Area G, one from the fields between Phaneromeni and Episkopi Bamboula and the last was found 100 m. southeast of Operation D3. Two additional pieces were excavated in Area J during the 1978 season of excavations, which brings the known total from Phaneromeni to 35.

Maximum length of the 3 x 10 design: 23.5 cm.
Average length: 18 cm.
Minimum length of the 3 x 10 design: 16 cm.
Maximum width of the 3 x 10 design: 9.0 cm.
Average width: 6.9 cm.
Minimum width of the 3 x 10 design: 5.4 cm.
Maximum diameter of a depression: 1.9 cm.
Average diameter:1.4 cm.
Minimum diameter of a depression: 1.1 cm.

Type 2. 4. Figs. 29, 36. S85, 238, 248, 281. Small, flat, sub-rectangular. All are fragmentary with the exception of S281, which is also the sole representative of its class with a large secondary depression and a spiral on the reverse side.
Average length of the 3 x 10 design: 11.8 cm.
Average width of the 3 x 10 design: 3.8 cm.
Average diameter of a depression: 1 cm.

When the first two stones were discovered in 1975 at Settlement A, (fig. 30: S19, 21), a single object of Cypriot origin was available for comparison, namely a R.P. brick-shaped terracotta with 3 rows of 10 shallow depressions (fig. 39:3). In between these, and on the sides, it is decorated with incised zig-zags and 5 clusters of 4 incised lines perpendicular to the long axis. The overall dimensions are 14 cm. by 6 cm., with the hollows measuring about 1 cm. in diameter. The decoration is typical of R.P.III Ware[1], dated in broad terms to the M.C. period.

The terracotta which belongs to the Hajjiprodromos collection in Famagusta is thought to have come from a looted tomb, and its good state of preservation added to the ready availability of funerary material, make this a likely assumption. Settlements of E. and M.C. are not common and usually disdained by looters who prefer the easily located and more profitable tombs[2].

The Phaneromeni excavations at Settlements A and G in 1967 and 1977, recovered stones with similar patterns almost ad nauseam, bringing the total to 28.

1. Since 1974 the location of many objects in the Hajjiprodromos collection is unknown. Dr. E. Herscher who once studied the terracotta informs me that the fabric is also typical of R.P.III. (verbal communication). 2. Most of the tomb looting took place in areas then inaccessable to the Dept. of Antiquities staff.

A limestone slab with 3 x 10 small cups or depressions was excavated at Toumba tou Skourou[1] (fig. 37:2). It measured 43.5 cm. long by 20.2 cm. wide and 6.5 cm. thick, and was found just above the charcoal (covered) floor of the earliest period, laying on or near a low wall or bench[2]. Associated ceramic material included R.P.IV or V, B.S.-R.S., Pto. B.R. or early B.R. pottery, which would date the level to the very beginning of the L.C., exactly contemporary with Settlement A at Phaneromeni.

P. Astrom published a stone[3] with a similar arrangement of depressions from Dromolaxia Trypes about 1km. to the east of the great urban site of Hala Sultan Tekke, first settled in L.C. I and abandoned in L.C.III. Although the stone has rows of 12 or 13 depression each, those of most uniform shape and size form an easily recognised 3 x 10 pattern. The remainder are larger or damaged and might have been added later.

In view of the finds from Toumba tou Skourou and near Hala Sultan Tekke it is not surprising the inhabitants of Episkopi Bamboula were familiar with the pattern. A thorough though non exhaustive survey of the now overgrown Bamboula settlement and a more casual investigation of the neighbouring fields and dry stone wealls, produced 7 additional examples. Two such stones had been reused as building material in the L.C. II or III[4] circuit wall and a L.C.III domestic structure[5]; a third[6], lay amongst the debris on the west side of the fortifications and the remainder came from outside the excavated area. As a group, the Bamboula examples closely resemble those of Type 1 from Phaneromeni. The average length of each row of depressions is 21 cm., with a width of 6.4 cm. The holes are usually about 1,4 cm. in diameter. Similar patterns have been noted on stones at Kouklia Marcello[7]. Kouklia is the site of the

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1. I should like to thank Dr.E.Vermeule for permission to mention this unpublished object. A photograph of the stone appears in Kendall 1978 "Corrections, with Additional Notes and Comments p.5. 2. The stone was found in square D12 (cf. Vermeule 1975, fig.4:3 squares south from the north edge of the grid and 12 squares east of the west edge) near the base of the large north-south mudbrick wall. For its stratigraphic position cf. op. cit. fig.5:8th square from left, 2nd square from bottom. 3. Astrom 1977:112 fig.1. 4. Astrom 1972b:38. 5. Astrom 1972b:14ff. 6. This piece is unique in being made of andesite versus limestone. 7. Maier 1967.

only major L.C. settlement on the southwest coast. Unfortunately, none of the stones are in situ, and they would appear to have formed part of the Persian siege ramp, much of which had been torn from Archaic and earlier structures in the vicinity[1]. At the earliest the stones are L.C.I, at the latest they are Archaic.

In 1978 the Cornell University excavations at Alambra uncovered a stone threshold with 3 irregular rows of 10 depressions each[2]. The settlement belongs to a mature stage of the M.C.[3], which makes this the earliest recorded discovery of the motif.

A reused stone slab with 3 rows of carefully pecked depressions was incorporated in the altar of Temple IV at Kition. Following the 8th depression there is a break and it is not known whether the original arrangement included 10 or more to a row, especially since other stones with geometric patterns of holes are known from Kition.[4]

In view of the common occurrence of the 3 x 10 pattern at L.C. settlements, its apparent absence at Enkomi Ayios Iakovos, the largest and most extensively excavated city of the period, is unexpected. Although its significance was previously unknown it is hardly possible that such a diagnostic motif could have utterly escaped detection at Enkomi, had it been current. This possibility, however, cannot be excluded, as mentioned by J.C. Schaeffer[5].

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1. The Kouklia area was occupied from at least L.C.IA (Maier 1969:117). The main temple of Aphrodite was in use from L.C.II onwards (Maier 1975:77). Dr.V.Wilson was kind enough to allow me to study the unpublished stones from the siege mound. 3 pieces were of interest : KA3731 is a fragmentary stone with a 6 x 3 pattern on one side and an irregular design of 13 depressions on the other; KA351 has geometric arrangements of depressions on both sides, unrelated to the Phaneromeni 10 x 3 or spiral patterns; KA323 is a fragmentary stone with an 8 x 3 arrangement on one face.
2. I am grateful to Dr.J.Coleman for permission to mention this unpublished object. 3. Coleman 1977. 4. Information supplied by Dr.V.Karageorghis and personal observation. Some of the cupulate stones from Kition - though not the spiral discussed below - were almost certainly offering tables or kernoi. 5. In March 1977 I sent photographs and drawings of stones with the 3 x 10 pattern and spirals to Prof.J.C.Schaeffer enquiring whether he had ever noted such patterns at Enkomi Ayios Iakovos or Ras Shamra Ugarit. In a letter dated June 1977 he confirmed that, as yet, none had been recorded at these sites, but saw no reason why they should not have existed, at Enkomi Ayios Iakovos especially. I have also spoken at length with and shown the comparative material to Jacques and Elisabeth Lagarce and J.C. Courtois, senior assistants of the Enkomi and Ras Shamra excavations. They confirmed Schaeffer's comments.

This concludes our review of the excavated or well documented parallels, and we shall now turn to the B.A. sites of the Episkopi region surveyed by the present writer and the K.S.U. team.

The evidence proves that the abundance of the 3 x 10 motif at Phaneromeni is by no means a coincidence. On the contrary, it is the norm and all the large B.A. sites in the region support this view. Those sites most systematically surveyed, Erimi Kafkalla, Evdhimou Beyouk Tarla and Anoyira Peralijithias, yielded 4, 23 and 17 stones respectively . . .. If such are the results of a surface survey, what then might be expected from a regular excavation? With the exception of Sotira Kaminoudhia all the Settlements recorded in detail produced such stones[1], 56 in all (see tab. 7 and figs. 32:BT. S18, Pera S7, 81; fig. 33: Pera 545, A156). This impressive assemblage demonstrates one aspect of the cultural unity of the region in particular and Cyprus in general.

To summarise our information of this apparently ubiquitous yet hitherto unnoticed pattern, we have a total of 106 stones and one terracotta from 15 sites widely distributed throughout Cyprus. But despite its common occurrence at B.A. sites, evidence was lacking as to its purpose or function. It was apparently twice included in the paraphernalia of a M.C. burial , but elsewhere the associations are domestic. Many stones with this motif lay on floors amongst the debris, randomly scattered throughout the Settlement A. In other instances they served as building material, but were never associated with

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1. Kandou Balies, Evdhimou Ambelovounos and Paramali Mandra tou Pouppou were only cursorily surveyed by the author, after the K.S.U. survey was completed. The area of Anoyira Kolokos had been bulldozed beyond recognition, therefore was not surveyed in detail. For the explanation of the lack of 3 x 10 patterns at Sotira Kaminoudhia see p. 322. 2. cf. the Hajjiprodromos terracotta and a stone from Paramali Mandra tou Pouppou which was discovered in the large cemetery. The nearest settlement is 300 m. to the south, which practically excludes the possibility of domestic material being accidentally incorporated in the filling of the dromoi. In any case the dromoi were not normally emptied by the looters, who entered most tombs via the roof. Finally, the lack of weathering and the colour of the patina proved that the stone had only recently been uncovered.

specific objects (gaming pieces etc.) and only twice were they connected with a particular location: e.g. the thresholds of Evdhimou Stympouli and Alambra Mouttes.

A search for foreign parallels and an explanation of the highly characteristic pattern, leads to Byblos, and again stresses the close ties between this site and Cyprus in the B.A. From Levels XI-XV, Area 15/16, there came a rounded piece of limestone - probably from the nearby beach - with 3 parallel rows of 10 neatly cut depressions and a rectangular cavity at one end [1] (fig. 37:3 (12526)). The rows are 16 cm. long and 5.4 cm. wide with holes 1.4 cm. in diameter. The similarity between this object and the Cypriot stones is striking and hardly the result of chance. A similar object of cruder manufacture, found in Levels VI-X, Area 16/21,[2] differs in one important aspect from all previously discussed stones; the depressions are separated by grooves forming a chequerboard pattern (fig. 37:3 (9734)). The dimensions only slightly exceed those of the largest Cypriot example as the chequerboard measures 33 cm. by 11 cm. and the average diameter of the holes is 2.2 cm.[2a] Dunand believed both objects might be games, but gave no reason for this assumption[3]. He dates the stones to the very end of the M.B.A. or beginning of the L.B.A.[4], therefore later than the main body of material from Cyprus. Unless unpublished material and new discoveries of an earlier date are forthcoming, the origin of the Cypriot pattern cannot be sought at Byblos.

A comparable stone was excavated at Hama, Level J 1[5]. Here the chequerboard of 30 squares and hollows is associated with one large and two small quadrangular troughs, that give an overall impression of an intricate, well-planned gaming board (fig. 37:3 (3A435)). Indeed, the

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1. Dunand 1958:531, fig 610. The rectangular cavity not visible in the drawing. 2. Dunand 1954:310, fig. 340. 3. Op. cit.:310. 4. Letter dated March 1979. 5. Fugmann 1958:80, fig. 103:3A435. 2a. A limestone slab with an identical 3x10 arrangement of squares - here without depressions - was found in Levels XI to XV. Cf. Dunand 1953, fig. 661:13079. Though no function is suggested, this too was surely a game. Cf. also Op. cit., fig. 559:12202, for a smaller stone with 3 parallel rows of at least 7 squares (both ends are missing) with motifs incised in the 2 outer rows. It was thought to be a game.

excavator mentions the possibility of a game[1] but failed to make any comparisons. The rectangular zone measures 11 by 3.5 cm., and each hole is about 0.9 cm. in diameter, proportions similar to the Type 2 stones from Phaneromeni and Anoyira Peralijithias. Fugmann dated Level J 1 to around 1900 B.C.[2], though a higher date of around 2100 B.C. is now considered more likely[3].

Fragments of rectangular gaming boards divided into 3 parallel rows of squares or depressions are recorded at a number of Near Eastern sites. From Tell Halaf[4] there came a stone with 3 preserved rows of 9 crudely drawn squares each. Presuming the board originally had 3 x 10 squares, the overall dimensions would have approximated 28 x 9.5 cm. Another block[5] showed 3 parallel rows of 9 shallow holes. Unfortunately one end is damaged and the original number cannot be reckoned, though by analogy with the above piece a 3 x 10 pattern seems most likely, in which case the rows of holes would measure 34 cm. Both stones are Iron Age in date, and interpreted as games by their excavator.

At Gezer, Macalister recorded several building stones etched with chess-board patters[6] or shallow "pits"[7] forming 3 rows of squares or depressions. They came from stratae IV, V, VI and the Hellenistic period[8]. Since none of the tables are intact, one cannot be sure of the original number and arrangement of squares, but in one instance - pl. CCI:8 - there were at least 10 in a row.[9]

In Stratum VIII (9th century B.C.) at Hazor, a stone was discovered with a pattern of 20 squares scratched on one side and 30 on the other. It is damaged and the exact number of divisions remains undetermined, but the excavators[10] believed there were probably 30.

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1. Op. cit. p.76. 2. Op. cit.:85. 3. Verbal communication from P.J. Parr. See also Dever 1976, chart 7, of EB-MB (Kenyion) or MBI (Dever etc.) date. 4. Oppenheim 1962, taf. 42i. 5. Op. cit.:52, taf. 43a. 6. Macalister 1912:299, pl. CCI:1, 6, 7 and possibly 8 and 10. 7. Op. cit. fig.441a. 8. Stratae IV, V, and VI cover the 8th to 4th centuries B.C. 9. Op. cit:495 10. Yadin et al 1960:34, pl. LXXVIII:6.

Two rough limestone blocks from the disturbed caves at Lachish[1] have lines of depressions cut into one face (fig. 40:2, 3). No.3 (fig. 40:2) shows 9 approximately parallel rows of 9 to 19 hollows each. The second stone, on fig. 40:3, though broken in two, displays 8 approximately paralled rows of 5 to 14 hollows each, if both halves are rejoined. These stones with their apparently random number of rows and hollows are reminiscent of a surface find from Phaneromeni Area G with at least 34 hollows arranged in 4 rows (CHM 327)[2]. Since the Lachish caves contained exclusively E.B.A. material, Tufnell suggests a similar date for the decorated stones[3].

Several stones with the diagnostic 3 x 10 pattern of depressions have recently been excavated in late E.B. contexts at Bâb edh-Dhrâ'. This is the earliest occurrence of the motif in the Levant, which already hints at its popularity and widespread distribution[3a].

Anatolia is surprisingly barren of cupulate stones, games or gaming boards[4] and the only parallel noted was a clay object from Bogazkoi with 3 rows of 8 holes[5]. If the terracotta is intact its function is open to question[6], but if broken we might have a local version of the 3 x 10 pattern, resembling that of the Hajjiprodromos collection.

The comparative material from Iran is widely separated in space, if not in time. A damaged stone with 3 x 5 squares scratched on one

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1. Tufnell 1958:71, pl. 21:3; the second stone is unpublished. I am grateful to Miss Tufnell for permission to mention it here. The photographs of both stones were traced in ink (fig. 40) and the 2 halves of no. 3 reconstructed. 2. Swiny 1976, fig. 5. 3. Verbal communications from Miss Tufnell; 3a. I am obliged to Dr.J.Lee for this information concerning material discovered in 1978. I have not actually seen photographs or drawings of the objects. For the latest comments on the terminal date of Bâb edh-Dhrâ cf. Freedman 1978:152. 4. Dr.A. Hoerth who has made a detailed study of M.E. games (see n.4 p.115) informs me that Anatolia has only one example of Hounds and Jackals, and nothing else. 5. Bittel 1937, taf. 41:21. 6. There is no recorded game in the Ancient Near East with 3 rows of 8 squares, although the possibility of its existence cannot be ruled out. From the photograph the object does look intact.

face was discovered at Suza[1] in a XIIth century B.C. context. Although the original number of divisions is undetermined, 30 is a distinct possibility.

A fragmentary tile from Baba Jan, in the southwest, was decorated with a crude pattern of 21 squares - 4 of which bear X's - in 3 adjacent rows[2]. Again the original number is undetermined, but since the basic arrangement is 3 rows of at least 7 squares, there is no reason why the original number could not have been 30. The find is dated to late Giyan II - early Giyan III, ca. 1500 B.C.

At Haftvan Tepe to the northwest, an unbaked clay tablet with 3 rows of 8 holes was found in level VIB, dated to the Kassite period, 1500 - 1400 B.C.[3] There is no mention of the tablet being fragmentary, only that the unbaked clay was friable, which suggests that each row could initially have contained more than the number of holes recorded.

Returning to the Levant, an intriguing group of objects with 3 x 10 patterns must be mentioned. A series of small (from 4.5 to 8.5 cm. long) bone plaques from Tell Farah and Lachish have suspension loops and 3 rows of 10 perforations, a pattern which exhibits the basic characteristics of the Phaneromeni stones (fig. 37:2, 3561, 59, 481)[4]. The dated examples belong to the Iron Age and are interpreted as calendars by Petrie: "The calendar tablet of bone 481 shows the Egyptian reckoning of the month as 30 x 10 days. This is curiously like a modern Javanese calendar board[5]..." Tufnell leaves the question open by describing the Lachish plaques as calendars or games. At both sites, one might add, the associated material includes Cypriot pottery.

In the Aegean and Crete to the west, comparative material is almost totally lacking, if abstraction is made of the spiral, concentric circles and random motifs, dealt with in the following section.

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1. De Morgan 1905:104, fig.349. 2. Goff 1976, pl.VIIIa, here described as stone, but the object drawing has the following caption: tile - 2 fragments, grey clay. 3. Burney 1975:159, pl.IVa. 4. Macalister 1912 pl.CCXXVI:58-60 and 63; Petrie 1930, phot.XXXVI:481; Tufnell 1953, pl.55:27 and pl.56:23. 5. Petrie 1930:31.

Dr. G. Overbeck has made a study of cupulate designs incised on Cretan stones, which have a tendency to be indiscriminately labelled as "offering tables" or kernoi[1]. To date she has only recorded one example of a motif arranged in parallel rows[2]. It comes from a threshold in the M.M. to L.M. palace at Gournia (Building Aβ) and contains 4 parallel rows with at least 20 hollows each. Clearly there exists a generic link between this pattern and the Cypriot or Levantine material, but it is limited to a correspondence in form rather than substance: if both types are games, for example, they are not of the same sort.

Another stone from Youktas[3] with a grid pattern of 104 hollows carefully arranged in parallel rows either side of a large central cavity, was probably intended as an offering table for it was discovered near a chapel. There is no real comparison between this object and the 3 x 10 stones from Cyprus.

Our search for analogical material ultimately leads to Egypt where games are frequently depicted in funerary wall paintings, or, as in the case of Tutankhamun's burial, they belong to a category of grave goods - here represented by 4 gaming boards.

In the E.D. period a game known as Zenet (znt), the game of "passing", was played on a board of 30 equal squares so arranged as to form 10 by 3[4].

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1. Platon 1973:107, fig. 102; Charpoutier 1928; Demargne 1945 etc.
2. Letter dated June 1977, with a photograph of the stone. I am grateful to Dr. Overbeck for sharing her information with me. Note that the positioning of the game at Gournia finds a close parallel with the thresholds in Cyprus at Alambra Mouttes and Evdhimou Stympouli. 3. Cf. Ergon 1975:114, fig. 104. 4. Vandier 1952: 406ff., fig. 273. For the most comprehensive and up to date description of Zenet, its history, its interpretation and how it might have been played, cf. Kendall 1978. This is a booklet accompanying a modern rendition of the Zenet game marketed by the Kirk Game Company Inc. Zenet has attracted much attention and is the subject of considerable scholarly research. The most detailed studies have been carried out by A.J. Hoerth for his Masters Thesis: Game Boards of the Ancient Near East for the University of Chicago, 1961 (Unpublished), and E.B. Pusch of West Germany. Contemporary interest in the game is shown by its inclusion in Games of the World, Ed. Grunfeld 1977, and at least 3 versions marketed by toy companies.

The earliest three dimensional representation of the game is a clay table from El-Mahasna described as having 30 squares, but the photograph[1] would only appear to show 24 and there is no mention of whether the object was damaged or not. A number of conical draughtsmen were discovered nearby, suggesting two players with 5 or 6 pieces each.

The royal tombs at Abydos and Saqqara contained many ivory gaming pieces, fragments of throwsticks and of the boards themselves[2], attesting to the popularity of Zenet at this early period.

During the Old and Middle Kingdoms the game remained much in favour, and is frequently shown in wall paintings and reliefs. The representation of a Zenet complete with gaming pieces on the wall of the Dynasty III tomb of Hesy-Re is extremely informative[3]. A plan view of a box containing the gaming pieces shows 4 throwsticks and 14 gaming pieces 7 for each player. The starting position in the upper right-hand corner of the board is painted with a star and several squares have signs relevant to the play of the game. Proof that Zenet was part of everyday life is supplied by the Dynasty XII model of a war vessel showing a game in process (fig. 37:1)[4].

Zenet remained in vogue during the N.K.[5], to the extent that Tutankhamun's tomb contained 4 game boards[6]. The finest specimen (pl.LXXV B) is described by Carter as "A reversible gaming-board of ebony and ivory having on the top a game of three by ten squares, and on the bottom a game of three by four... Size 21½ xll x 7 in".

Towards the end of the XVIIIth. Dynasty Zenet began to acquire religious connotations - which culminated in the mid 13th century B.C.[7]

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1. Ayrton and Loat 1911, pl. XVII. 2. Petrie 1900:23; Petrie 1901:36, pls.XXXII:31,71; XXXIV:1-17; XXXV:5,6,73; Emery 1954:29,31,56ff. fig.11, pls.XXII, XXIX. 3. Quibell 1931, pl.XI and XVI. 4. Garstang 1907, fig. 149,157. I am obliged to Mr. D. Brown, Department of Antiquities, Ashmolean Museum, for having the boat rephotographed and for information concerning a Venetian inlaid gaming board. 5. Hayes 1959:198-200.
6. Carter 1954, vol.III p.13, pl.LXIIA and B, pl.LXXVB and XLIIB.
7. Kendall 1978:27.

but still retained its popular appeal as a pastime for the living. It now belonged to the funerary cult and was considered a necessary item of the paraphenalia facilitating transfer of the deceased to the Underworld. The boards which previously were only marked with numerals and a few hieroglyphs[1] are now frequently replaced by more elaborate symbols and even pictures. There is no evidence, however[2], to suggest any changes in the rules of play, or that different gaming boards accompanied the deceased. Nothing, for example, in the character of Tutankhamun's game-boards suggests they were intended as cult objects and they might have been in use during his lifetime.

In the introduction to Chapter 17 of the Book of the Dead, playing a game of Zenet is described as one of the occupations of the deceased in the next world. The vignette accompanying the chapter represents the deceased seated at a checkerboard, often beside his wife, but without an opponent[3]. Another religious text mentions a similar if not identical game played by the dead man in order to decide his fate in the Underworld[4].

Examples of Zenet gaming boards and references to wall paintings depicting the game in play, could be multiplied, but would contribute little useful information to the present study[5]. What does remain to be discussed, however, are the rules of the game and how it might have been played[6].

As suggested by the representations of the game and the double sets of gaming pieces, Zenet was played only by two people at a time facing the long sides of the board. The course of play was apparently decided by 4 throwsticks - though astragals were sometimes preferred - but a set of rules specifically describing how the game was played has yet to be discovered, and probably never will. They can only be deduced, to some

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1. Nash pl.1:5; Carnarvon and Carter 1912 pl.XXVII; Kendall 1978, fig.15; Quibell 1913, pl.XI and XVI. 2. Kendall 1978:23. 3. Naville 1886, taf. XXVII. Naville publishes 5 if not 6 vignettes showing the deceased playing Zenet without a partner. 4. Peiper 1931:16-33. 5. The later history of Zenet, which is last attested c.350 A.D. in Egypt, has recently been summarised by Kendall 1978:34-43, and is beyond the scope of the present work. 6. Cf. Kendall 1978:4-5.

extent, by captions referring to the game in play and the more elaborate boards of the N.K.

The implications of various markings on a Zenet board in the Royal Ontario Museum have been discussed by Needler[1], who noted that they conformed to a specific pattern. A papyrus in the Museo Egzio, Turin, has a vignette showing a Zenet with the name of each square indicated. The progression of names informs us that the player started at one end, moved up that row, down the central one and up the third row[2]. As previously suggested, the Hesy-Re board is explicit in this respect. If the player started at the star, the U shaped signs in the middle and bottom rows would indicated the points at which the pieces turned and reversed direction. To quote Kendall[3] "The goal of the players was the mastery of the five final squares, and the winner of the game was doubtless he who first brought all of his pieces successfully through the course and off the board".

Returning to Cyprus, if the elaborate and sophisticated game of Egyptian Zenet played on a 30 square board, is to be equated with the rustic patterns of 30 holes found on the island, we must determine whether the postulated link is chronologically possible and then decide if the game is playable on such a crude arrangement. The first question is answered without difficulty since, as noted above, the occurrence of Zenet in Egypt predates and postdates all the Cypriot and Levantine material. If an Egyptian source of inspiration is required it poses no problems from a chronological standpoint, and the means by which the game might have reached Cyprus will be discussed below, in connection with the spiral motif.

It remains to be determined whether the markings on the squares of Egyptian boards were necessary to comprehend the rules and play the game in its true form. Hoerth[4] believes that the legends in certain squares

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1. Needler 1953. 2 Kendall 1978:5. 3 Op.cit.:5. 4. Letter dated June 1977.

were a prerequisite and notes that of the 38 Zenet boards he has catalogued, 30 are marked and the remainder are either abnormal, incomplete or inadequately published. However, the markings on many of the early boards[1] are so simple as to be easily memorised and crude grids of 30 squares[2], with few or no markings, are found throughout the long span of Egyptian history[3], down to at least the 7th century B.C.[4] An even later occurrence of the 3 x 10 motif can be found on the roof of the great temple at Dendera[5]; here the squares are replaced by depressions, as in Cyprus.

The evident popularity of the game and its widespread distribution in humble burials proves it was not exclusively reserved for the literate minority. Commonfolk would possess Zenet boards of wood, terracotta, stone or, if necessary, scoop out a series of holes in the ground. Surely they would have no use for complicated legends they were unable to read.

We have noted several Levantine and Iranian gaming boards with square differentiated simply by crosses which might correspond to the more elaborate Egyptian legends. Given a knowledge of the verbally transmitted rules, there is every reason to believe that Zenet could be played on any flat surface with 30 divisions - depressions or squares - forming 3 parallel rows of 10, an arrangement which embodies the basic characteristics of the Cypriot stones and terracotta.

As above mentioned, the Cypriot material has none of the Egyptian or mainland differentiations, although S231 has a transverse dividing line on each face. Due to the damaged aspect of the stone, it cannot be determined if the line separated the rows into equal groups of 5 or some other number.[6] The incised motifs on the Hajjiprodromos terracotta should not be interpreted as specific markings connected with certain

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1. Quibell 1913, pl.XL; Nash:1902, pl.1:5. 2. Carnarvon and Carter 1912, pl.XXVII. 3. Kendall 1978:19,20. 4. Lauffray 1971, fig.17 bis. For a discussion of these two boards cf. Kendall 1978, fig.30, and "additional notes on the fig.30". 5. Kendall 1978:42. 6. Note that one of the Byblos stones (Dunand 1958, fig. 661:13079) is drawn with the 5th. transverse dividing line protruding either side of the rectangular playing surface, which separates the game into 2 sets of 5x2 squares. If the line on S231 is indeed in the middle, this provides a paralllel between the 2 stones.

depressions, and there is no evidence to suggest that they were chosen for any purpose other than decoration.

Although individual depressions might remain undifferentiated, the Cypriot games do exhibit the use of secondary troughs or depressions, also noted in the Levant but absent in Egypt. Here, gaming pieces are often stored in drawers lodged inside the game boxes, whereas, elsewhere, the simpler versions had to make do with depressions. The troughs of the Hama game - an excellent intermediary between the Egyptian boards and Cypriot stones - might be explained in the following terms: the larger of the 3 held the gaming pieces when not in use, while the others lodged the pieces taken off the board in the course of play. The Cypriot games were necessarily played with small gaming pieces - stones, seeds, shells etc. - which would have required a place for safekeeping. The secondary depressions are an ideal though non essential arrangement for this purpose[1].

Two terracotta games of late Elamite date[2] from Suza, the largest of which measures 14.4 by 7 by 3.6 cm., were divided into 3 rows of 12 squares, each with a small circular hole in the centre. The holes were obviously intended to receive a peg, and in this respect are only one step removed from the smaller Palestinian bone plaques. Though earlier in date than the Persian and Palestinian objects mentioned here, an antecedent for the use of pegs as gaming pieces is found in the Egyptian game of "Hounds and Jackals" which was popular in Palestine from the M.K. onwards[3]. The playing pins were inserted in the drilled holes and moved the same way as those of contemporary portable chess sets, and there is no reason why the bone plaques could not have been used for playing Zenet.

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1. The non essential nature of the depressions would explain why not all stones had these features. 2. Mecquenhem et al 1943:45, fig. 39:2-3. Late Elamite = late 2nd. millennium B.C. 3. Hayes 1953:250, fig. 160.

If the game that reached Cyprus early in the M.B.A. is indeed Zenet, or a version of Zenet, it could have been played with pebbles, seeds or shells on the stones marked with 3 parallel rows of 10 depressions. But if this interpretation is rejected, then a new function for the stone must be sought. Could the pattern represent a form of abacus? Ten is a significant number if a decimal system common to those of the M.E. was in use[1]. Neugebauer mentions[2] that in strictly mathematical or astronomical contexts the sexagesimal is consistently applied, and in this system the number 30 probably had a role of some importance. With little imagination both systems could be combined in the 10 x 3 patterns, which would be in keeping with the ancient Cypriot aptitude of adopting foreign ideas to their own advantage. To be accepted, this interpretation must then overlook the spirals cut on the reverse side of several 3 x 10 stones and view the inhabitants of Phaneromeni, Beyouk Tarla and Peralijithias as avid accountants rather than gamblers!

Alternatively the stones might have served as calendars based on the solar year, rather than the awkward lunar month. This interpretation also leaves unexplained the necessity for the spirals on the reverse side of some stones, and their multiple occurrences within a single structure. It is hardly likely that more than one calendar would be required per household!

The possibility of a religious function, such as offering tables, can surely be dismissed. Analogies with Cretan kernoi are nonexistent, since the depressions are too small to have contained other than the smallest offerings - i.e. seeds - and the larger secondary depressions are not a constant feature. The characteristic feature of Cretan libation tables is a circular cavity or bowl with a raised collar,

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1. Neugebauer 1969:17. 2. Op. cit.:17.

sometimes surrounded by carefully drilled secondary cupules (i.e. the Youktas and Mallia stones Nos. 2 and 27 described below). Moreover, the finite arrangement and number of depressions are quite foreign to Agean libation tables when studied as a group[1]. The only parallel, however vague, comes from Youktas[2], but as can be seen from the object's photograph, it obviously belongs to a different category.

Finally, the most satisfactory explanation is also the simplest. Accounting, the reckoning of time, or religious beliefs are less likely reasons for the motif than the simple desire for recreation!

Gaming stone. Mehen

Sample: 9. Figs. 34-36. S84, 178, 244, 280, 281, CHM-RR325, 326, 328[3], 329.

Material: Limestone.

Description: Consistency in size, dimensions and shape of the stone, as well as the size and number of depressions in a spiral is totally lacking. The characteristic feature or common denominator of each, is a spiral running from right to left, typically beginning and ending with a more pronounced depression.
With the exception of CHM-RR328, which might be unfinished, the spirals occupy most of the available space of the surface on which they are carved. The elongated shapes of some stones, for example, required an oval spiral in order to accomodate the largest number of cavities.

	No.of Holes	Diameter	Shape of Spiral	Differentiated Starting Hole	Differentiated Central Cavity
S84	42	33	Circular	Yes	Yes
S179	29(50?)	20x16	Oval	Yes	Yes
S244	43	19x12	Oval	Yes	Yes
S280	17(+)	18	Circular	No(?)	Yes
S281	30	15x13	Oval	Yes	Yes
CHM-RR325	69	29	Circular	Yes	Yes
CHM-RR326	47(56?)	25x22	Oval	?	?
CHM-RR328	10	10	Oval	No	Yes
CHM-RR329	87	31x25	Oval	No	Yes

1. This view is shared by Mrs.P.Muhly who is studying the lithic material from Kato Syme in Crete. I am grateful for her useful comments on the Cretan material,&the reference to Soles' unpublished Ph.D. with a photocopy of his discussion of Cretan offering tables. 2. Ergon 1974:114, fig.104.
3. Cf. Swiny 1976, fig. 3, Pl.IX:2.

As can be seen from the above table, and in striking contrast with Zenet, there is no standardisation in the number of holes and even less in the size of each spiral. Most, but not all, have larger cavities both at the centre and at the perimeter. Some stones are too large, unwieldy and heavy to be moved without effort (S84, 280, CHM-RR328, 329), while others could be carried under the arm. Workmanship is indifferent, the spirals are irregular and the cavities unevenly cut. CHM-RR329 (fig. 35) is the only stone on which some degree of attention has been payed to craftsmanship and layout.

The date of the earliest Cypriot spiral - S84 - has been discussed elsewhere in detail[1]. It served as door slab or plaka to Tomb 23e[2], in use from E.C.IIIB - M.C.I to around the middle of M.C. The upper limit is further corroborated by the discovery of an E.C.III B-M.C. bottle from Lapithos[3] in the adjoining Tomb 23d. Both chambers were approached by the same dromos and a study of the toolmarks suggests they were dug with the same implement, facts which argue strongly in favour of their contemporaneity. The evidence would support an M.C.I date for the initial use of the plaka.

The bifacial stone (S244) from Area G dates from middle to late M.C., and S281 from Settlement A is contemporary with or slightly earlier than L.C.I A, since it was found built into a wall.

Excluding the survey material, the only known comparison on the island comes from outside Temple IV at Kition, in the shape of a large boulder with a spiral cut into one face[4]. The carved surface now lies at 45°, but according to the excavator the stone is not in situ. About one meter in diameter, it boasts at least 98 cupules and a well defined central depression with additional cavities located outside the circumference. The find spot and general appearance of the stone strongly argue for a religious function[5]. It is dated to pre-1000B.C.[6]

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1. Swiny 1976:50-51. 2. For plan cf. Karageorghis 1976b, fig.66. 3. Verbal communication from Dr. Herscher. 4. Karageorghis 1976b:880, n.40, fig.79; Karageorghis 1976c:235, 6, 7, fig.6. 5. Karageorghis op. cit. 6. Karageorghis 1976b:880.

Unlike the 3 x 10 pattern of Zenet which after its initial recognition at Phaneromeni has proved quite a common occurrence at M. and L.C. sites, parallels for the spiral pattern remain elusive. Fortunately, and almost as expected, the survey provided the much needed corroborative evidence, and the discovery at Anoyira Peralijithias of the first spiral outside of Phaneromeni was one of its highlights! Comparable finds from Evdhimou Alatomi, Beyouk Tarla and Stympouli soon completed the picture (fig.33: Al. S2, Pera S19; fig.34).

The material is best presented in tabular form in the same manner as that from Phaneromeni.

	No.of Holes	Diameter	Shape of Spiral	Differentiated Starting Hole	Differentiated Central Cavity
Pera S19	27	13	Circular	No	Yes
BT S52	41	26	Circular	Yes	Yes
Al S2	13(19?)	15	Circular	Yes	?
Stym S1	76(80)	26	Circular	Yes	Yes
Stym S2	60	23x16	Oval	No	No

When compared as a group with the Phaneromeni material, the survey spirals exhibit the same lack of uniformity in size and number of depressions. Diagnostic features such as larger starting and central holes are present on most examples, although double motif (spiral and Zenet pattern) stones were not represented. There can be no question that we are dealing with exactly the same category of object as at Phaneromeni, now represented by 15 examples distributed between 6 different sites[1].

Bearing in mind the religious connotations of the Kition stone outside of Temple IV, an obvious starting point for foreign connections is the Aegean, and Crete especially. The palatial "Offering Table" from Mallia represents the finest known example of quite a large group.

The previously suggested[2] bipartite division of the Aegean and Cypriot material, based on morphology and find spots, will be adopted here, but with important changes resulting from recent discoveries. The following table, is to the best of my knowledge, a comprehensive

1. The stone from Kition is included in this total. 2. Swiny 1976:54.

list of the material, excluding that excavated at Phaneromeni or recovered by the K.S.U. survey.

SITE	DESCRIPTION OF MOTIF
1. Knossos	Circular: 7 holes remaining, probable total of 12. 2 larger[1].
2. Mallia	Circular: 34 holes, 1 larger. Central cavity[2].
3. Mallia	Irregular: 40 holes, 1 larger. Central cavity[3].
4. Mallia	Irregular: Ca. 20 holes, 1 larger[4]. Pavement.
5. Mallia	Irregular: 15 holes + (stone fragmentary). Pavement[5].
6. Kato Chrysolakkos	Circular: Outer circle between 30-36 holes, 1 larger. Central cavity.[6]
7. Kato Chrysolakkos	Irregular: 31 holes. Central cavity[7].
8. Gournia	Irregular: 14 holes +.[8] Pavement.
9. Gournia	Irregular: 17 holes +.[9] Pavement.
10. Kavousi	Circular: 10 holes.[10]
11. Phaistos	Irregular: 14 holes. Central cavity[11].
12. Myrtos	Irregular: Ca. 22 holes.[12] Pavement.
13. Myrtos	Irregular: 12 holes[13].
14. Myrtos	Irregular: 13 holes +[14]. Pavement.
15. Myrtos	Irregular: 31 holes +[15].
16. Myrtos	Circular: 29 holes. Central cavity[16].
17. Myrtos	Circular: 13 holes +[17].
18. Vasilike	? Irregular: 22 holes, probable total of 25, 26. Pavement[18].
19. Ayios Ellias	Spiral: many holes. Central cavity[19].
20. Bardaki (Naxos)	Spiral: many holes. Central cavity[20].
21. Bardaki (Naxos)	Spiral: many holes. Probable cavity[21].
22. Bouda Panermo (Naxos)	Spiral: 197 holes, some larger. Central cavity[22].

1.Evans 1930:390
2.Charpoutier 1928:299,fig.6,7.
3.Op. cit:302, fig.9.
4.van Effanterre 1955:545, fig.1.
5.Op. cit.:545, fig.2.
6.Demargne 1945, pl.48.
7.Op. cit., pl. 57:2.
8.van Effanterre 1955:545,fig.3.
9.Op. cit., fig.4.
10.Boyd 1901:141, fig.7.
11.Pernier et al: 1951:206, fig. 128.
12.Warren:1972:231, no.165
13.Op. cit. no.166.
14.Op. cit. no.167.
15.Op. cit. no.168, pl.78:B.
16.Op. cit. no.169, pl.78:C.
17.Op. cit. no.170, pl.78:D.
18.Op. cit.:230 and Pratika:1974,pl.248B, 249A.
19.Bardanis 1966:71, no.1.
20.Op. cit.:71, no.2, pl.1.
21.Op. cit.:71, no.3.
22.Op. cit.:72, no.5, pl.3:Renfrew 1972, pl.26:1.

SITE	DESCRIPTION OF MOTIF
23. Ayia Triada (Naxos)	Spiral: many holes. Central cavity[1].
24. Kition	Spiral: 80 holes +, some larger, Central cavity[2].
25. Sesklo	No pattern at all: ca. 38 holes, 4 larger[3].
26. Zakros	Spiral. 28 holes. 1 extra (Cf. fig.37:2)[4].
27. Youktas	Parallel rows. 104 holes. Central cavity.[5]

To the above list may be added a pair of limestone slabs with an irregular scatter of circular depressions coming from Troy I[6]. They have a general resemblance with no.25 from Sesklo and lack any formal pattern[7].

There is, as yet, no concrete evidence for the exact use of these cupulate stones, whatever their provenance, shape or size. Pre-Classical evidence[8] is lacking, and secondary archaeological remains - e.g., gaming pieces, bones or carbonised botanical material - on or around them, is rare[9] or inconclusive. Neither do we have any representations on rings, seals, stone vases or wall paintings to assist with their interpretation. In most instances the stones are interpreted as offering tables, usually because of their association with built stone altars. In fact, this appears to be a circular argument, since the altars, in turn, are only recognised as such because of their proximity to the stone offering tables![10]

In contrast with the search for comparisons with Zenet, to date there is but one close parallel for the spiral motif in the Levant. It is a surface find recovered from one of the disturbed E.B:A.I-II caves at Lachish[11] (fig.40:1). This roughly piriform stone measures

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1. Op. cit.:73, no.7. 2. Karageorghis 1976b:880, fig.79. 3. Deonna 1934:46, fig.35:1. 4. Ergon 1973:107, fig.102. 5. Ergon 1974:114,fig.104. 6. Blegen et al: 1950:157-8. 7. Similar cup marks arranged in a circular pattern with a hollow in the centre have been found in association with Hittite statues. Here they are interpreted as offering tables. Cf. Ussischkin 1975:85 ff. 8.Alexiou 1974:234. 9. Boyd 1901:141, for a terracotta disc next to No.10 from Kavousi, which might have been a gaming piece. 10. For the various interpretations of the Cretan material see Swiny 1976:54. 11. Tufnell 1958:71, pl.21:2. See n.3, p.43. The stone is now kept at the Institute of Archaeology, University of London, and I am obliged to Miss Tufnell for allowing me to rephotograph it.

45.5 cm. by 28 cm. with a thickness of 9.5 cm. One face, smooth and slightly convex, is covered with a spiral of 120 shallow depressions running clockwise, which starts and ends with larger and deeper cavities[1]. The edges are chipped and in one instance sufficiently damaged so that 6 holes are only half preserved. Though weathered, the soft white limestone shows numerous percussion marks.

Since comparative stratified objects are lacking it is unwise to attach overimportance to a surface find, even one which resembles the Cypriot material so closely. It should be noted, however, that 2 other stones with rows of depressions from Lachish (fig.40:2, 3) also bear comparison with Cypriot material[2], therefore the spiral is not a totally isolated occurrence. No function was suggested for any of these stones.

To continue with the search for an explanation of the spiral motif, we now turn to Egypt where there a parallel might exist amongst the O.K. board games. Indeed, one such was played on a circular stone[3] table carved with the stylised representation of a coiled snake (fig. 38, 39). The Egyptians knew the game as m h n[4] or Mehen, translated as "large snake" or more literally "the coiled one"[5]. At least 16 O.K. gaming boards of different decoration, size and material have survived. On 5 of these - nos. 1 to 5 - the reptile is clearly represented with tail on the outside and head at the centre, characterised by a shallow depression. Here the link between the actual boards and the game's name is unmistakable. With other examples the rendering of the spiral is more abstract, but nevertheless recognisable as a snake (nos. 6, 7).

The following list includes all known Mehen gaming boards, which

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1. Av. D. of the depressions 1.5 cm., depth 0.4 cm. The terminal cavaties measure respectively 2.4 cm. in diameter by 0.8 cm. deep and 3 cm. by 2 cm. with a depth of 0.9 cm. 2. Cf. p.44. 3. There is no reason why wood should not have been used for Mehen gaming boards, though none have been preserved. 4. Montet 1955:190; Vandier 1964:486 n.3; Shore 1963:90.
5. Shore op. cit.

belong either to the Predynastic or Old Kingdom periods.

1. Berlin Museum[1]. 91 bosses separated by narrow grooves, conveying the impression of a segmented snake's body. A clearly recognisable head is shown at the centre. The small triangular appendage on the circumference has been variously interpreted at a turtle's head[2] or a handle. The small hole below, also the subject of controversy, would appear quite simply to have served for suspension purposes[3]. Indeed, when Petrie initially described game no.3 as an amulet he suggested it was to be suspended in the owner's house for prophylactic purposes[4]. Predynastic.

2. Ashmolean Museum[5]. Fig. 39. 29 bosses. Similar to no. 1, but with a more naturalistic head. The divisions between the bosses are slightly more pronounced. Predynastic.

3. Petrie Museum, University College[6]. Fig. 38. 72 bosses. Similar to no.2, but the head is complemented by a naturalistic tail and a small conical protuberance at the end of the perforated appendage.

4. Fitzwilliam Museum[7]. Fig. 38. 124 bosses. Very similar to no.3. 5 bosses have been hatched: 2 groups of 2 in adjoining spirals, almost diametrically opposed. The position of the 5th is apparently random. According to Shore[8] there is evidence for an appendage.

5. Metropolitan Museum[9]. 126 squares separated by shallow incised lines, quite different in character from the preceeding games. The head and tail, rendered by the same technique, are very realistic. The rectangular appendage is not pierced, which constitutes a second unusual feature. Dynasty I.

6. British Museum[10]. Fig. 38. 164 bosses and recesses of varying size, forming a checkered pattern. The head is represented by two semicircular segments either side of a small central depression. The

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1. Scharff 1929, taf. 33. 2. Fischer 1968. 3. From careful observation of Scharff1926, taff. 33 and no.3 in the Petrie Museum, it is obvious that the wear patterns of the holes are indicative of suspension. 4. Petrie 1914:25. 5. Petrie and Quibell 1896, pl.XLIII. 6. Petrie 1914:96, pl.XLVII. 7. Ref. Eg.A.4664. 8. Shore 1963:91 n.4. 9. Ref. 58.125.1. 10. Shore 1963, pl.XXXIIIA.

representation of the snake is more abstract. The board has a low splayed pedestal but no appendage on the circumference. Dynasty II.

7. Musee du Cinquentenaire, Brussels[1]. 178 bosses and recesses, similar in arrangement to no. 1. Evidence for an appendage on the circumference. It is difficult to determine whether or not a snake's head ornamented the centre of the spiral. Dynasty II?

8 - 11. Location?[2] No.8. (Amelineau no.8). At least 250 bosses and recesses resembling nos. 6 and 7. The restoration shows these arranged in <u>concentric</u> circles, not a spiral. No.9 (Amelineau no.9) Small fragment with 29 bosses and recesses. No.10 (Amelineau no.10). As no. 8, with ca. 120 bosses and recesses. No.11 (Amelineau no.11). The restoration shows 4 separate spirals leading to the centre. The restoration of all these items should be subject to caution in view of the different and apparently unique arrangements of the playing surfaces. One board had an appendage to one side[3]. Snakes heads and tails are apparently not represented. Dynasty II.

12. Musee du Louvre[4]. Many squares separated by incised lines. No appendage, Conical foot.

13. Cairo Museum[5]. With 4 legs and rounded projection at the edge.

14. Musee du Louvre[6]. Probably a post O.K. imitation of a <u>Mehen</u> gaming board.

15. Cairo Museum[7]. Now lost. No information available.

Studied as a group the boards provide no information as to their function(s), and as noted in connection with no.1, several might plausibly be interpreted as amulets. Although <u>Mehen</u> is less frequently represented than <u>Zenet</u>, supplementary information is provided by 5 O.K. wall paintings

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1. Montet 1955, fig.2. 2. Amelineau 1905, pl.XLVII:8-11. 3. Vandier 1964: 487. 4. Ref. E.25340; Vandier 1964:488(c). 5. Ref.J.E. 27354; Vandier 1964:488(b). 6. Vandier 1964:488(d). 7. Vandier 1964:488 n.3 and 4. Note that the Lapis lazuli disc with a coiled snake in the Petrie Museum mentioned by Vandier 1964:487(a), is an amulet and not a game. (Personal observation).

and reliefs, often complete with captions.

1. Tomb of Hesy-Re[1]. Saqqare. Dynasty III.
2. Tomb of Chepses-Re[2].
3. Tomb of Kaiemânkh[3]. Badly preserved.
4. Tomb of Idu[4].
5. Tomb of Isesi-merynetjer[5]. Dynasty V.

According to the painted scene in Hesy-Re's tomb, the game was played with 3 couchant lions and lionesses complemented by 36 coloured marbles. But whereas secondary information provides a general understanding of the rules and play of Zenet, we are completely in the dark with Mehen[6]. The captions are ambiguous or open to differing interpretations. The function of the marbles, for example, is unclear, especially on boards with bosses alone, or with scratched divisions.

Even the triangular or rectangular appendage on certain boards cannot be satisfactorily explained, though it probably represents the funnel shaped appendages so prominent on the reliefs and paintings[7].

With the close of the O.K. ca. 2180 B.C. Mehen seemingly goes out of favour and only reappears in Dynasty XXVI funerary scenes[8] which depict stunted versions of the game. There is nothing to suggest that Mehen continued in vogue throughout the intervening centuries and the simplified, stylized rendering of the Dyn. XXVI scenes reinforce this impression. The artists had apparently no conception of how the game might have been played[9] and were slavishly copying earlier models[10].

From our study of the material relating to Mehen, several important facts have emerged which argue strongly in favour of equating the Cypriot spirals with the O.K. game.

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1. Quibell:1913, pl.V. 2. Lepsius 1849-1859, pl.61a. 3. Junker 1940:Abb.9.
4. Simpson 1976, fig.38. 5. Kendall 1978, fig.6. 6. Vandier 1964:490-91.
7. Shore 1963:89; Vandier 1964:490 ff.; Montet 1955. 8. Vandier 1964:489.
9. I have not seen these reliefs, but if they render Zenet - which was still played - in an equally stylised form, it would weaken the argument suggesting that the Mehen tomb scene was totally misunderstood.
10. Vandier op. cit.

Morphology is the first and most obvious point of comparison. By definition, Mehen is a continuous spiral made of bosses and recesses, or incised squares and rectangles. The spiralling line of holes pecked into the Cypriot stones may be interpreted as a simpler and more rustic version of an identical concept, an evolution similar to that noted in connection with Zenet. Alternatively, the change in form of the gaming surface could be explained by the use of different gaming pieces none of which have been recognised in Cyprus, with the possible exception of TC a small terracotta disc (cf. p.217).

The second point concerns the number of divisions, which is apparently random, and ranges anywhere from 10 to 98 in Cyprus and 29 to 400 in Egypt. Typically, the beginning and end of the spirals are differentiated: the central hole and elongated starter of those from Cyprus may be viewed as degenerate versions of the snake's head and tail. If the rules required an alignment of gaming pieces at both ends of the snake, similar concentrations would be possible in the more pronounced terminal depressions of the Cypriot stones.

The third point is based on our interpretation of the Egyptian reliefs and wall paintings. When board games are depicted in the O.K. it is Mehen and Zenet which are shown side by side, to the exclusion of any other. This suggests an equal popularity for both games, played alternately by the deceased. The Cypriots, or those from the south coast in any event, did not possess fine wooden Zenet boards, so there was no reason why for the sake of convience, both games should not be represented on the same stone, one to each face. The concept of double gaming boards can be traced through M.E. history[1] almost down to the present[2]. Bifacial gaming stones (fig. 36, S179, 244, 280 and 281) are as yet, restricted to Phaneromeni, but with continuing research they will predictably occur on other B.A. sites.

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1. For but 2 examples cf. Carter 1954, vol.III, p.13, pl.LXXV B; Yadin et al 1960:34, pl.LXXVIII:6. 2. A Venetian gaming board in the Ashmolean Museum (No ref.no.) has a chess-board on one side and a coiled dragon on the other. Although no connection is suggested between this object and the Cypriot stones, continued association of such familar patterns on the same board is not without interest. Department of Western Art,

The appearance of both motifs on the same stone is considered to be the strongest argument in favour of seeking their antecedents in the games of Mehen and Zenet.

A final reason for supporting an Egyptian origin of the spiral motifs is that no other satisfactory explanation for their meaning or function has been advanced. Following the same argument as put forth in connection with Zenet, the crowded arrangement and small size of the depressions of most spirals would effectively preclude their serving as offering tables for anything larger than seeds. Furthermore, if a religious function were anticipated, one might expect - with the exception of CHM-RR329 - more care to have been lavished both on the cutting of the depressions and the general appearance of the stone. Sometimes they had previously served another purpose, S179, for example, was a well worn saddle quern.

A secular interpretation is strengthened by the re-utilisation of a Mehen (S281) as building material in Settlement A. It was not given the more exalted position of cornerstone, and nothing is suggestive of a foundation deposit. It is unlikely that an object with strong religious connections would be disregarded in this fashion, especially since the meaning and function of the spiral remained understood throughout the L.C., as demonstrated by its appearance towards the end of the period at Kition.

Studying the morphological characteristics of the Cypriot and Egyptian material as a group, it may be argued that some resemblances are individually fortuitous, but their cumulative effect is too remarkable to dismiss. Nevertheless, in order to prove the apparent connection between the Cypriot motifs and the Egyptian games, the physical possibility of the equation must be demonstrated in chronological and geographical terms.

Almost 400 km. of open sea separate Cyprus from Egypt, and there is no evidence to suggest direct or indirect contact before M.C.III at

the earliest[1]. If the controversial vase from Vasilia[2] is indeed Egyptian, it could have reached Cyprus via the Asiatic mainland. Indeed, there is no reason why the contact should have been direct as the eastern Mediterranean currents[3] and our knowledge of ancient shipping suggest that whenever possible sea-borne trade followed the coast. Any Egyptian or Cypriot merchantman plying between the two countries would certainly have navigated along the Syro-Palestinian coast in order to reach his destination. The existence of Old Kingdom contacts with Syro-Palestine, and Byblos in particular, is amply documented. This last site probably included an Egyptian trading community, as suggested by the so-called "Egyptian Temple" of Old Kingdom date[4]. Fourth Dynasty records mention a trading expedition to Syria for wood[5], a consignment which must logically have returned by sea. Evidence for contact between Egypt and Syro-Palestine during the same dynasty has recently been excavated at Tell Mardikh-Ebla[6]. Matthäe believes that the Old Kingdom objects discovered here were originally intended for Byblos, and were not the result of direct trade links or diplomatic intercourse.

Since Mehen disappears from the archaeological record with the close of the Old Kingdom, the terminus ante quem for its arrival in the Levant is ca. 2180-2160 B.C.[7]. We have seen that the spiral and 3 x 10 motifs occur more or less simultaneously on the island at the beginning of M.C. (ca. 1950 BC), which presents an unacceptable chronological gap of two centuries between this material and the

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1. Merrillees 1968:190, 1977:40. 2. Stewart 1962:274. The shape is typical of Chalcolithic II and III flat bottomed bowls. Finally the date of the Vasilia deposit is far from securely established Hennessy 1974:8.
3. Instructions:315 and map p.35. 4. Montet 1928:29ff.: Wilson 1951:82; Gardiner 1966:89; Ward 1963. 5. Ward op. cit. p.22. 6. Matthäe 1978:299ff.
7. For the chronology followed here cf. Gardiner 1966:436; Kantor 1965, fig.3. C.A.H. 1971:995 (chronological tables).

Egyptian prototypes, if a direct link is postulated[1]. However, if Syro-Palestine is accepted as the source of Egyptian ideas or objects arriving in Cyprus, it might also be suggested that the mainland served as a chronological intermediary. Byblos with its multiple Egyptian contacts during the Old Kingdom must have played a key role in the diffusion of ideas originating in the Nile Valley, but, as yet, nothing remotely resembling a Mehen gaming board has been excavated there[2], and the only 3 x 10 stones are of late M.B.A. date. The Lachish spiral then assumes a disproportionate importance, if its E.B.III date is accepted as at least probable[3]. This stone provides the only link - both chronological and typological - between Mehen and the Cypriot spirals. Lachish is approximately equidistant between the Delta and Byblos, and it seems more likely that the concept of the game reached the site by land rather than sea. One must assume that, although uncommon, the game remained in use from the 22nd to the 20th centuries BC in the Levant, and that other spiral gaming boards await discovery or publication! This assumption is given credence by the parallel evolution of Zenet, which from the number of Old Kingdom representations was apparently more popular than Mehen. The 3 x 10 pattern also occurs more often than the spiral outside the Nile valley. It is first recorded at Bad-edh Dhra in E.B.III (cf. p.113), followed by the more sophisticated EB-MB (or MBI) board at Hama J1 and the MBIII stones at Byblos. The game was probably equally common in the Iron Age, but since most of the examples are fragmentary, the situation remains unclear.

The appearance of the motifs on Cyprus at the beginning of the M.C. corresponds to a well documented and sudden increase in foreign contacts.

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1. It must be noted that we have no knowledge of E.C. settlements since Gjerstad's excavation at Alambra should be redated to M.C. in the light of the Cornell University excavations. However, it is unlikely that the games would have reached Cyprus at this time since there was hardly any contact with the outside world. 2. Letter from Dunand dated March 1979. 3. An E.B.III date would make this stone contemporary with the Old Kingdom in Egypt. Cf. Kantor 1965, fig.3.

Imports from Crete[1] appear for the first time, as well as objects of Syro-Palestinian[2] origin and possible Anatolian[3] influence.

The influx of foreign ideas was perhaps connected with an expanding sea-borne trade between the Levant and the Aegean, in which Cyprus was an obvious port of call prior to the long haul via the inhospitable[3a] south Anatolian coast. It has recently been suggested[4] that this enterprise, concentrated in the hands of Minoan merchants, was mainly concerned with metals - copper and tin. If so, the introduction of the Levantine forms of Mehen and Zenet might be attributed indirectly to Minoan trade with the island. This interpretation presupposes that the games were a form of entertainment known to the ship's crews, who had learnt the rules in the Asiatic sea-ports and transmitted them to Cyprus. Alternatively, Cypriots serving as crewmen[5] or wishing to reach the mainland, might have seen the games during their travels and introduced them to the island upon return. The connection between recreation and travel was surely well established in Egypt at least, where a XIIth Dynasty genre scene of a war vessel (fig.37:1) has as its focal point a game of Zenet. A connection between the Minoans and the Syro-Palestinian form of Mehen would also help explain the otherwise independent occurrence of spirals in the Cyclades and Crete. The large and somewhat heterogeneous body of material from Naxos is the most difficult to

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1. Branigan 1974:11; 1968:61; Merrillees 1977:36; Catling and Karageorghis 1960:109-112. 2. Astrom 1972a:209-252; Henschel-Simon 1936:173, fig.5b; I do not believe that O. Negbi's (1972:98-110) attributions are correct. No pottery of this type has ever been recorded in Cyprus.... 3. The Anatolian contacts at the beginning of M.C., more tenuous than those from the Aegean and the Levant, are mainly correspondences in shapes of ceramic and metal objects. Cf. Dr. Herscher's Ph.D. thesis made available to the author in typescript form. 3a. Mellaart 1954:176-7. 4. De Jesus 1976:227; Branigan 1968:47-8; Muhly's suggestion (1973:189ff) that the Minoans came to Cyprus to obtain copper and perhaps tin is unlikely with reference to the latter metal. Prior to L.C.III tin is only rarely used as an alloy (cf. Buchholz 1967, tab.3, 10, 16), and there is no obvious reason why the Minoan merchants should not have dealt directly with the tin merchants located somewhere along the Asiatic coast. See Baurain 1978:123-4 in this connection. 5. Stewart 1963:204.

interpret[1]. Due to the conditions of discovery no firm dates are available, though Dumas suggests that the end of Early Cycladic is likely (ca. 2100-2000 BC)[2]. Since the chronology of these finds is ill defined, a MMIa date is equally probable, a date which would link the spiral motifs with the expansion of Minoan trade. The tenuous nature of the connection is emphasized, however, by the unusual arrangement and associations[3] of the Cycladic material, coupled with the lack of contemporary spirals in Crete. The only Cretan example is of the later, Proto Palatial period, and was discovered set into the floor of Room H at Zakros[4]. The excavator does not mention whether the floor is early or late within the period, therefore the stone could date anywhere from 1900 to 1700 BC[5]. As noted above, the piece lacks the typical differentiations at either end of the spiral, which weakens its comparative value with Cypriot and Asian material. In any event, the Proto Palatial period is contemporary with the M.C., and the appearance of the motif at Zakros, a site with well established Levantine and Egyptian contacts[5a], could be interpreted as yet another manifestation of east-west Minoan trade.

Finally, it must be decided whether the equation of spiral motifs with an Egyptian game is going to affect the previously accepted religious interpretation of most Aegean stones. Indeed, the excavators are usually unquestioning in their belief that cupules cut into stone slabs served as libation tables (No. 26 is described as "Κέρνος πανσπερμίας"), although tangible evidence for their usage is lacking[6].

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1. Bardanis 1966; Dumas 1965; Swiny 1976. 2. Dumas op.cit. p.63, pl.40:B, C,D, pl.41:B; cf. Renfrew 1972:176 ff. and tab.13. IV for the dates adopted here. 3. Several of the Naxos spirals are runnels and not a continuous line of depressions; others are associated with secondary representational carvings. Cf. Bardanis and Dumas op.cit. 4. Ergon 1973:107. 5. Platon 1971:235, chronological table. 5a. Platon:1971:240ff. 6. Swiny 1976:54.

No references to religious connotations for Mehen have been found, and it would appear that the later history of Zenet was unique in this respect. It has been suggested that ancient games often embodied religious or magical overtones[1], and although this aspect is not specifically mentioned in the Egyptian texts, there is no reason why Mehen should not have acquired a religious status in Cyprus and the Aegean. The exact date and original location of No.24 from Kition is uncertain. Karageorghis believes it is L.C.[2], which is not far removed in time from the latest examples at Phaneromeni Settlement A. Did the Cypriot spiral game acquire religious overtones in the course of the L.B.A., which gave it a place in the temple complex at Kition, but caused its disappearance from dómestic contexts[3]? Perhaps the use of S84 as a plaka (door slab) was an early step in this direction, for the stone made a fine gaming-table and the cutting of the depressions would require a certain expenditure of time and effort. If a plaka were needed for Tomb 23E, it would seem more logical to quarry a new slab, since stone is readily available in the vicinity. When S82 was chosen to seal the entrance of the burial chamber, reasons other than suitability of size and shape probably governed the choice; either the deceased was an avid Mehen player and this was his favourite board, or it was felt a necessary part of the funerary equipment. That S84 is the only similarly decorated plaka known[4] diminishes the value of further speculation on the subject.

The Zakros spiral, however, does little to support a religious function. On the contrary, it occupied an inconspicuous position set into the floor flush with the surrounding paving stones. The location of Room H is unremarkable and none of the appointments are suggestive of cult.

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1. Hood 1971:122. 2. Verbal communication. 3. It will be remembered that the 2 spirals from Settlement A were not from the destruction debris 4. Swiny 1976:54.

It is clear that the spiral stones form a category separate from the main body of Aegean material, but at present it is impossible to be certain of a non religious function, although this is considered a strong possibility. The great table from Mallia and the associated though lesser examples from Kato-Chrysolakkos, Phaistos, Myrtos and Youktas, are different, and there is no reason to question their previously suggested religious associations.

III THE METAL WORK OF SOUTHERN CYPRUS PRIOR TO THE LATE CYPRIOT II PERIOD

Much has been written about the mining and smelting activities of ancient Cyprus, traditionally considered a major copper source for the Eastern Mediterranean and the Aegean[1]. Indeed, the name of the island itself is probably derived from that of the metal[2].

Davies[3] was amongst the first to discuss the question of ancient Cypriot metallurgy from an archaeological viewpoint, and since then a steadily increasing amount of material has appeared in print[4]. A careful study of the literature reveals several obvious lacunae and paramount amongst these is the fact that no concrete evidence for B.A. primary smelting or mining has yet been recovered, although much attention has been paid to such activities. Another omission is the lack of a comprehensive analytical and metallographic study of the objects recovered from B.A. tombs and settlements. A small percentage of this metal has been sampled[5], but as pointed out by Craddock[6] it is unwise to compare the results from laboratories of varying competance in archaeological work, which often employ different analytical techniques. Seen in this light, most of the analyses prior to those carried out on Dikaios', Schaeffer's and Stewart's Vounous[7] material, will be of little comparative value.

In this chapter the term "smelting" or "primary smelting" is used to represent the initial reduction of an ore to a refined or semi-refined state, as opposed to remelting and/or refining.[8] For practical reasons, primary smelting can only have taken place in the vicinity of the mines and fuel supplies. Sulfide ores in Cyprus rarely exceed 5% copper - the norm is around 2%[9] - and there is no evidence to suggest that the enriched oxidized ores ever existed in any substantial quantity.[10]

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1. Catling 1964:7ff; Hill 1940:8-9; Karageorghis 1969:40 etc. 2. Muhly 1976:192. 3. Davies 1928:30. 4. Steinberg et al 1974:149 n.2, gives a summary of the main publications, to which should be added: Schaeffer 1936:94; Muhly et al 1975; Zwicker et al 1977: Tylecote 1977. 5. Buchholz (1967) lists most published analyses up to 1967 in his article. For additional analyses see de Jesus 1976:226 n.22; p.232, 233. 6. Craddock 1976:95. 7. Cf. Dikaios 1940:174; Schaeffer 1936:97; Stewart 1950:371. 8. Tylecote 1976a:19. 9. Catling 1969:82. 10. Bruce 1937:644.

In order to produce one kg. of copper metal, approximately 300 kg. of sulfide ore, and large quantities of charcoal are necessary[1]. In antiquity the problem involved in transporting material of such bulk and weight would effectively dictate that smelting took place near the ore-body, especially if this coincided with the proximity of the fuel sources. We must consider the possibility that the location of smelting operations reflect the availability of fuel rather than ore. It may have been preferable to transport the hand-picked or washed ore to the charcoal-producing areas, rather than vice versa. Fortunately, most of the Cypriot mines are located in the Troodos Massif, which presumably was at least as heavily forested in antiquity as it is today[2].

Unfortunately, the sites closest to the mines which have been investigated, have so far failed to yield any smelting or metal working installations. The evidence from the Chalcolithic settlement at Ambelikou Ayios Georghios[3], often cited as the earliest proof for metallurgy in Cyprus, can be questioned seriously and probably rejected, since it relies solely on a schist mould published as a surface find. The mould was supposedly intended for rather an amorphous looking flat axe, without known parallel in Cyprus, and from a study of the published drawings it looks suspiciously like a shallow mortar.

To date the only known Chalcolithic metal objects are very small, forged pieces, probably made from native copper[4]: a chisel from Erimi Pamboula[5], a spiral from Vathyrkakas[6], a chisel and a fishhook from Kissonerga Lemba[7]. It should be noted that the Erimi chisel contained traces of tin, which is not found in Cyprus[8]. Very rarely is this metal associated with copper bearing minerals, in which case it is

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1. Tylecote 1977:317. 2. Christodolou 1959. 3. Dikaios 1946; 1962:147, fig. 70:5. 4. Tylecote 1977:321. 5. Dikaios 1936:50. fig. 13:H. 6. Tylecote op.cit. 7. Karageorghis 1977:744, fig. 67. 8. Von Bissing 1932. Muhly 1966:258; Broughton 1938:622.

known as stannite[1]. If the analysis of the chisel is correct we must either accept it as an import or a remelted piece using previously imported metal[2].

That metal working was part of the activities of the inhabitants at Ambelikou Chroma tis Galanis (Site B), there is no question[3]. Slag, a crucible and two moulds were found here, and although Dikaios' initial E.C. date[4] should now be considered as M.C.[5] this site shows the earliest irrefutable evidence for metal working on the island. There is no reason to suggest, however, that all pre M.C. metal implements were imported, as this would be an untenable supposition in view of the indigenous typology and sheer volume of material[6]. Though evidence is lacking, Cypriot metal-smiths must have smelted the local ores from Chalcolithic III onwards, when metal becomes common.

The L.C. industrial complex of Apliki Karamallos[7] not far from Ambelikou, was involved in some form of metallurgy, although the exact nature of these operations have not been determined. At Athienou Bamboulari tis Koukkouninas[8] on the far side of the Troodos range, the processing of copper ores and manufacture of metal objects were part of the on-site industrial activities. A religious interpretation has been suggested[9].

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1. Muhly 1966:98. 2. The same was thought to be true of the so-called "Philia Culture" objects from Vasilia: cf. Stewart 1962:242. See below and the analyses Tab. 2.I was granted permission to sample the objects in the Ashmolean Museum for analysis by Dr. Craddock, but the results became available too late to be incorporated in Table 2, and will be found in Table 2a. In contrast with the earlier analyses which show an all-important trace element of tin, the present results fail to detect any at all. The discrepancy emphasises the differences that exist even between recent analyses, especially when dealing with the implications of the presence/absence of trace elements... 3. Dikaios 1946.
4. Op.cit. 5. Personal observation after viewing the material in the Cyprus Museum. See also Merrillees 1978:3. 6. Op.cit. p.4.
7. Du Plat Taylor 1952:150. 8. Ben-Tor 1975. 9. Op.cit.; Karageorghis 1976:169ff. for the association of religion and metallurgy.

The major L.C. centres such as Enkomi Ayios Iakovos, Kition, Hala Sultan Tekke Vizaja and possibly Episkopi Bamboula[1], show considerable evidence for copper production. Although Area A at Phaneromeni was little more than a small village, it too practiced some form of metallurgy, if only to repair broken implements and cast new ones. From amongst the debris of the large open Area 21 there came the remains of two crucibles and a piece of copper rich mineral. Unfortunately, no pyrotechnical installations were discovered nearby.

Though important, the information supplied by these sites is of a limited nature, and nowhere can we trace the industrial process from primary smelting to the production of finished objects. For reasons stated above it is most unlikely that smelting ever took place in the cities. Even presuming that problems concerning the transportation of ores could be overcome, we should then expect large slag heaps in their neighbourhood - and of these there is no evidence. It has been estimated, for example, that 100 kg. of slag would result from the smelting of 10 kg. of copper[2]. Furthermore, it should be noted that the smelting of sulfide ores produces highly noxious fumes, quite unacceptable for a workshop located within a city. The final objection to smelting having taken place at Enkomi Ayios Jiakovos and Kition, is the frequent mention of ash associated with slags and crucibles[3]. Rothenberg[4] is adamant that due to the chemical reactions and temperatures associated with copper smelting, no ash should be

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1. For Enkomi see Dikaios 1969a:56ff., especially 61-3. For Kition see Karageorghis 1976:72ff. For Hala Sultan Tekke see Astrom 1976:LV. For Enkomi again see Lagarce 1971:381ff., fig.26. For slag at Bamboula see Benson 1972:128, 138. Several pieces of slag from different levels were noted in the Bamboula sherd trays in the C.H. Museum (Personal observation). 2. Tylecote 1977:317. 3. Dikaios 1969:56ff.; Lagarce 1971:391; Karageorghis 1976:72ff., 113. 4. Seminar on Timna at the Institute of Archaeology, University of London, 1977.

recovered, a fact born out by a study of any large slag heap of "Phoenician" or Roman date[1].

Some authorities [2] believe that copper was dispatched from the mines in a semi-refined condition,(possibly even as matte) a suggestion supported by Tylecote's[3] recent analysis of slag from Hala Sultan Tekke. If, during the L.C., copper was only being dispatched from the mining centres in ingot form, it is surprising that with the exception of the Mathiati hoard[4] none were lost or mislaid in transit to the coastal towns.

The controversy surrounding the identification of Cyprus with Alasia, or Alashiya continues[5], though now the equation is generally accepted[6]. This situation is generated by the inconclusive nature of the evidence, and the question will probably not be resolved until new material becomes available. If extensive Early and Middle Bronze copper mining and smelting were to be found on the island, it would support those arguing for the location of Alasia in Cyprus.

Considering this background it is surprising that so little attention has been directed to the location and excavation of B.A. mines and smelting complexes. One simple reason appears to be that most archaeologists working in Cyprus have visited the major mining centres such as Skouriotissa, Kalavassos, Troulli or Limnitis, only to find that any evidence for B.A. smelting apparently is smothered by the massive Roman workings. In fact, this explanation already was offered 50 years ago by Davies[7]. Metallurgists who have also surveyed the sites, have been equally frustrated in their attempts to distinguish B.A. installations, and apart from taking samples[8] or

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1. The writer has visited the major slag heaps in Cyprus. 2. Schaeffer 1936:101; Catling 1969:83; Steinberg 1976:176. 3. Tylecote 1977:324. 4. Catling 1964:282. 5. Catling 1975. 6. Masson 1973:98-9; Masson 1976:140; Muhly 1972:201-219; Holmes 1971:426-9. For an opposing view see Merrillees 1976:334 and 1972:110-119, who would prefer to see Alasia in northern Syria. 7. Davies 1928:75. 8. Tylecote 1971:51-58; 1977; Zwicker et al 1977:309-16.

making relevant observations on isolated chance discoveries[1], no long range, broad spectrum study has been initiated. Steinberg and Kucky's[2] work comes closest to this goal, but their focus, so far, has concentrated on eastern Cyprus in general and the Dhali region in particular. Tylecote[3] proposed to undertake a similar study with Kalavassos as a starting point, but work has not begun yet.

With specific reference to Cyprus, archaeologists might ask a number of questions for which answers only can be sought through the investigation of metallurgical and mining installations, supplemented by the study of metal artifacts[4].

First, when were sulfide ores smelted in the B.A.? Since oxide and carbonate ores are formed by alternation of primary sulfides, all copper will contain some sulphur[5], so that this question cannot satisfactorily be answered by the analysis of copper ingots or finished objects alone[6], though slag analyses appear to be useful[7]. Metallographic analysis is most likely to diagnose what kinds of ore were used, but this requires a relatively large sample, or the removal of the surface patina from a small area, procedures unacceptable in most museums.

Second, what technology was available to B.A. smeltermen, and were sulfide ores roasted first? If roasted ores were preferred, a copper high in iron or matte would be produced[8], a result which is not borne out by the existing analyses. It is, however, difficult to be categoric in such matters, and iron traces in an artifact are dependant, to some extent, on the smelting and final melting techniques involved: type of furnace, temperatures and atmosphere, for example[9].

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1. Steinberg et al 1976:150 n.4 fig. 109; Tylecote 1977:317, 327. 2. Op.cit. 3. Tylecote 1977:324. 4. Cf. Coghlan 1976:28 for a general discussion of the problems involved with such a study. 5. Tylecote 1976:169; Balmuth 1976:201. 6. Tylecote 1976:170. 7. Bachmann 1974; 1976. 8. Bailey 1967:215; Bachmann 1976:128. 9. Cooke and Ashenbrenner 1975.

Third, to what extent was the copper refined prior to shipment from the mining region?

Fourth, once the copper has been semi-refined and passed on to the smith, what technological processes were followed in the production of a serviceable item? What moulds were available, or preferred, and how much annealing or coldwork were necessary?

Any serious study of B.A. metallurgy must attempt to answer at least some of these pertinent questions; if it is beyond the scope of this chapter to investigate them all, we shall at least attempt to provide indirect evidence for smelting techniques and forging. With this aim in view, the copper/bronze objects from southern Cyprus will be studied in the following manner:

I. Typological classification, leading to a chronological statement for each item.

II. Chemical analysis of samples taken from well dated and/or technically interesting pieces. The results are presented in Table 2.

III. Discussion.

I. Typological classification and chronology.

KNIVES

The 3 essential criteria for the study of this category are the shape of butt and shoulders, supplemented by the location and number of rivets.

The outline of the blade varies little, and usually tapers from the broad shoulders to a rounded tip. The present corpus does not follow Catling[1] and L. Astrom[2] in their definition of knives and

1. Catling 1964:102. 2. Astrom 1972c:483.

and daggers. The former only considers "single edged blades with an approximately wedge shaped section" as knives, the two edged pieces, like those from Phaneromeni being treated as daggers. These are certainly too short to have served any useful purpose as weapons, which is true of all non rat-tanged blades from southern Cyprus[1]. The largest of these, PM 2141/60, measures 12.3 cm., with a blade of 9.5 cm. Whereas the larger daggers or spearheads with their pronounced mid-ribs, were primarily intended for thrusting - an opinion previously voiced by Catling[2] - the knives are more suited for cutting, and their often concave edges are the result of wear from repeated sharpening.

The ratio of maximum shoulder width to blade length for southern Cypriot knives is in the order of 1 to 4, with the exception of Ph.M34, which is 1 to 2.5.

Ph. M16 Knife. Arsenical copper. Fig. 48. L. 9.8 cm., W. 2 cm., Th. 0.3 cm. The sinuous ogival butt with 2 rivets at the widest point, merges with the slightlydefined, rounded shoulders. The blade, with concave edges, tapers gradually to the rounded tip. It is approximately rhomboidal in section. The rivet holes 0.2 cm. in diamter, have been drilled from either side.

There are no exact parallels for the sinuous ogival butt and rounded shoulders; other knives from the South are all slightly dissimilar in outline. Stewart[3] classifies as Type A IVal butt-tanged knives with 2 rivet holes, Catling's[4] Group d "Daggers transitional from tang to butt: sinuous butts", and Astrom's[5] Type 3a "bulging tang with prolonged tapering top" all resemble M16. The second knife attributed by Astrom to Type 3a2 is quite similar to

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1. One might note in this context that in France, according to local tradition (but not necessarily law), any blade of more than 4 fingers - approximately 10 cm. - is considered as a potential weapon. Personal observation. 2. Catling 1964. 3. Stewart 1962:350. Where appropriate I have noted the number of occurrences of each Type listed by Stewart in his Corpus of Cypriot Artifacts: Metal Objects. He lists 2 occurrences of this type. 4. Catling 1964:60. 5. 1972a:139.

M16, though the butt is more elongated and less ogival in appearance.

The closest parallel to M16, both in shape and size, comes from Pendaya Tomb 1/116[1]. The rounded shoulders, long narrow blade and especially the sinuous butt - unfortunately broken through the two rivet holes - all closely resemble those of M16. Karageorghis also suggested[2] that the butt might have been ogival, which adds yet another point in favour of comparing the two. Stewart's Type A IVa1 is dated from M.C.II to L.C.I[3], and Astrom's Type 3a to M.C.III, and Type 3b to the end of M.C.II[4]. We have seen that Pendaya Tomb 1[5] belongs to the initial stage of L.C.IA, and is therefore contemporary with Phaneromeni Settlement A . A larger knife of 18.3 cm. from Pera does resemble M16, though the butt is more pointed[6]. In broad terms the hoard is dated from M.C.III or early L.C.I[7].

Ph. M34. Area 20. Arsenical copper knife. Fig. 48. L. 9.9 cm., W. 2.4 cm., W. (butt) 2.7 cm., Th. 0.4 cm.

The sinuous ogival butt has two rivets at the widest point, and the shoulders are well defined and angular. The rivets with flattened or bent ends have been inserted from either side, and unless countersunk, they would suggest the wooden? handle was 1.4 cm. thick. Handles of identical width were apparently affixed to PM 2141/60 and LM RR619/21. The blade, showing signs of wear, tapers quite sharply to a rounded tip; it has a low mid-rib ending just behind the two rivets in the butt, and is flattened rhomboidal in section.

M34 clearly belongs to Astrom's Type 2b[8], or Stewart's Type A IVa[9], and the first knife of these categories from Lapithos Tomb 315B-C1:19 is similar in every respect to the Phaneromeni piece.

According to both authors this type appears in E.C.IIIB-M.C.I and

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1. Karageorghis 1965a:41, fig. 13:116. 2. Op. cit. p.41. 3. Stewart 1962:350. 4. Astrom 1972a:200. 5. See p.204 . 6. Astrom 1977:26, fig. 19:62. 7. Op. cit. p.38. 8. Astrom 1972a:139. 9. Stewart 1962:350. He lists two examples in the Corpus.

is most common in M.C.II[1] with possible later occurrences. A single, larger blade, measuring 17.4 cm. comes from Tomb 1 at Pendaya[2]. Though damaged or corroded, the shoulders are slightly angular and the butt is approximately ogival, which classifies it in Astrom's Type 2b. Tomb 1 is dated to L.C.IA.

Ph. M60. Area 26. Arsenical copper knife. Fig. 48. L. (pres) 2.7 cm., W. (pres) 2 cm., Th. 0.4 cm.

Of the third knife from Phaneromeni only the butt and part of the shoulders remain. Fortunately these features are sufficiently diagnostic to enable at least partial classification. The broad, ogival butt very slightly flattened at the end, has a single rivet hole, The asymmetrical rounded shoulders are pierced with two rivet holes - apparently drilled from both sides - which evidently weakened the blade, causing it to break at this point. There was possibly a low central mid-rib. Though atrophied, the tang is more sharply differentiated from the blade than on the previous examples.

M60 probably belongs to Astrom's Type 2c with "Ogival tang, more or less marked shoulders and 3 rivet holes through the tang"[3], which is dated to M.C.II-III. It could also be classified as Stewart's Type A IVa2[4], "Domed butt-tang with 3 rivet holes" of M.C.II date. The tang of knife no. 170 from Lapithos Tomb 316,1[5] compares best with M60. According to Catling[6] who would classify M60 in group C "Tanged daggers", it should be seen as less typologically evolved than M16 or 34, and is predominantly found in E.C. contexts.

Several knives from the Pera hoard[7] are tanged in this manner, and so far as the material from the hoard can be relied upon, it indicates that Astrom's Type 2c is well attested at the end of M.C.

The pre L.C. cemeteries scattered along the south coast from

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1. Astrom 1972a:200 "M.C.II and possibly later". 2. Karageorghis 1965a, fig.13:81. 3. Astrom 1972a:139, fig.10, p.200. 4. Stewart 1962:350. He lists two examples in the Corpus. 5. Gjerstad 1934, pl. XXXII:1. 6. Catling 1964:60. 7. Astrom 1977, figs. 17:56; 19:63; 21:80; 22:81,83.

Kalavassos to Kissonerga have only yielded 16 knives, which, with the exception of LM RR151/69, are all well preserved and easily classified.

LM RR619/21. Anoyira Peralijithias. Tin bronze knife. Fig.48. L. 12.2 cm., W. 2.8 cm., Th. 0.4 cm.

Flat medium length tang, rectangular in section with a flat top. One angular and one rounded shoulder. The knife's excellent state of preservation suggests this asymmetry is intentional. A single rivet, square in section, was placed at the top of the tang, and two more, round in section, were driven from opposite sides into the shoulders. The length of the rivets indicate the original thickness of the handle was 1.4 cm. The long tapering blade with a pointed tip has a faint mid-rib ending just below the shoulders; it is concave in section and shows signs of wear.

Angular outline of tang and broad shoulders make LM RR619/21 stylistically the most primitive dagger from the south. It belongs to Astrom's Type 1d[1] of M.C.I-II and possibly M.C.III date and Stewart's Type A IIIe[2] dated to E.C.IIIB-M.C.I.

PM2141/60. Kissonerga Ammoudhia. Knife. L. 12.3 cm. (probably slightly longer initially), W. 2.5 cm., Th. 0.35 cm.

Flat, medium length tang, rectangular in section with a rounded top. Rather narrow, rounded shoulders. The tang has a single, circular rivet 1.3 cm. long, suggesting a handle of similar thickness. The tapering blade with a very slight mid-rib disappearing towards the damaged tip, shows signs of wear.

Astrom[3] classifies such knives as Type 1b, dated to M.C.I-II, and in Stewart's typology[4] they belong to Type A IIId of E.C.III to M.C.I date.

LM RR149/42. Limassol. Knife. The knife is not at present available for study, but from the rather cursory sketch and description in the

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1. Astrom 1972a:139. 2. Stewart 1962:350, fig.99 for the shape only. He lists 3 examples of this type in the Corpus. 3. Astrom 1972a:139. 4. Stewart: 1962:350, fig.99.

Limassol Museum records it is apparently of the same type as above. L. 11 cm. The broad straight-ended tang with one rivet and asymmetrical shoulders resembled those of LM RR619/21. The tip of the blade was rounded.

LM RR151/67. Limassol. Tin bronze knife. Fig. 48. L. 10.8 cm., W. 2.5 cm., Th. 0.25 cm., D. or rivets 0.2 cm.

Narrow flat tapering tang, rectangular in section with a flat top. Sloping shoulders with two circular, swollen headed rivets 1 cm. long, which indicate that the handle was originally of about the same thickness. The edges of the blade are concave in section, and show no signs of wear. A low mid-rib extends from behind the rivets to the rounded tip.

There are no close parallels for this type of narrow tapering tang. It is best seen as transitional from tang to butt, Catling's Group d, which in broad terms is dated from E.C.III to M.C.III. Astrom and Stewart record no such knives with rivets in the shoulders and not in the tang.

LM RR149/9. Limassol. Tin bronze knife. Fig. 48. L. 10.8 cm., W. 2.1 cm., Th. 0.25 cm.

Tapering butt with flattened top and two circular rivets at the juncture between the butt and ill defined, rounded shoulders. The blade has a low mid-rib, a rounded tip, and shows signs of wear.

The knife compares with Astrom's Type 4b[1] "Tapering angular top with 2 rivet holes", dated M.C.I to M.C.III. Its atrophied tang and rounded shoulders are, following the development of Cypriot knives, more evolved than LM RR151/67. Some of Catling's Group C[2] daggers with no distinct hilt or shoulders are closely related to this knife[3], and there are also points of comparison - shape and number of rivets - with the L.C.IA knife from Pendaya Tomb 1/106[4].

LM RR211/6. Limassol. Knife. Fig. 48. L. (pres) 11.5 cm., W. 2.2 cm.

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1. Astrom 1972a:140, fig. 10:15. 2. Catling 1964:125. 3. Op.cit. fig. 15:1, 3. 4. Karageorghis 1965a, fig. 13.

Th. 0.3 cm.

Tapering butt with flattened end and 2 rivets of split-pin type. The sloping shoulders are badly corroded, and whether they were initially rounded or angular is open to question. The tapered blade shows no signs of wear, but the point is missing. This knife should probably be classified in the same category as LM RR149/9.

LM RR149/41. Limassol. Tin bronze knife. Fig. 48. L. (pres) 11.5 cm., W. 2 cm., W. (end of blade) 0.5 cm., Th. 0.35 cm.

Ogival butt with 3 rivets, tapering to a long narrow blade with the tip missing. It would appear that the exceptionally narrow blade is the result of excessive wear from sharpening, rather than intentional forging. A blade of these proportions would be very weak. The occurrence is not unique, and a knife from the Pera hoard showed similar, though less advanced signs of wear.

LM RR149/41 belongs to Astrom's Type 2c[1], dated to M.C.II-III, and Stewart's Type A IVa2[2], dated to M.C.II. A knife with an identical butt was found in the late M.C.I. "Tomb of the Seafarer"[3], and two more are included in the Pera hoard[4]. L.C. knives of this type belong to Catling's Group a "Daggers with no distinct hilt or shoulders - convex butt". Four belong to L.C.I (nos. 1-4), the others are no later than L.C.II.

LM RR18/3. Ephtagonia. Tin bronze knife. Fig. 48. L. 8 cm. (the original length was probably around 10 cm.), W. 2 cm., Th. 0.3 cm.

Ogival butt with 2 rivets, tapering to a worn blade with tip missing. A low mid-rib extends up to the rivets.

Astrom classifies this type as 2b[5] dated to M.C.III and possibly later; for Stewart it belongs to Type A IVa1[6] dated from M.C.II to L.C.I. A knife from Arpera Mosphilos Tomb 1A[7] has a similar butt, though the shoulders are more clearly defined. The tomb group is dated to a late stage in M.C.III[8].

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1. Astrom 1972a:139. 2. Stewart 1962:350. He lists 2 examples of this type in the Corpus. 3. Stewart 1963:303, fig.11. 4. Astrom 1977, fig. 19:65; fig. 20:77. 5. Astrom 1972a:139. 6. Stewart 1962:350.a He lists 2 examples of this type in the Corpus. 7. Merrillees 1974:52, fig. 31:27. 8. Op. cit. p.75.

LM RR619/20. Unstratified. Anoyira Peralijithias. Tin bronze knife. Fig. 48. L. 8.3 cm., W. 1.9 cm., Th. 0.3 cm.

Identification of the butt shape is inhibited by corrosion; in its present state the butt is tapering and somewhat angular, with a roughly flattened top and 3 rivets. The position of the rivet holes - e.g. their distance from the edges - suggests that the butt was intentionally asymmetrical. A very low mid-rib extends from butt to tip, and the worn blade is rhomboidal in section.

This knife belongs to Astrom's Type 4c[1] dated from M.C.I to III. Though much larger, two knives of this type were found at Pendaya Tomb 1[2] and Akhera Tomb 1[3] in burials respectively dated to the initial stage of L.C.IA and L.C.IA proper.

LM RR18/4. Ephtagonia. Copper knife. Fig. 48. L. 7.1 cm., W. 1.5 cm. Th. 0.25 cm.

The butt tapers with an irregular flattened top, and has no rivets. These were probably considered unnecessary for a blade of such small dimensions, though several larger rivetless knives were found at Pendaya, Tomb 1. The slightly worn blade has a low mid-rib extending full length, with cutting edges double concave in section.

All the butted knives listed by Astrom[4] have rivets for attaching the handle. Tanged rivetless knives are common, however, in E.C.I[5] and again from the end of M.C.II[6] to the end of M.C.III, for which period 5 knives are listed. Of the 14 knives belonging to Tomb 1 at Pendaya[7], 4 are both rivetless and without pronounced tangs, which makes them closer to LM RR18/4 than to Astrom's Type 1a. This fact, combined with the butt shape, suggests that the knife is stylistically evolved and probably belongs to the terminal phase of the M.C.

To this corpus of southern Cypriot knives must be added two from Kalavassos, Tomb 8, published by Karageorghis[8]. Neither has a close

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1. Astrom 1972a:140. 2. Karageorghis 1965a, fig. 13:14, 88. 3. Op.cit. fig. 30:32. 4. 1972a:139-40. 5. Stewart 1962:350, Type A IIIa.
6. Astrom Op.cit. Type 1a. 7. Karageorghis 1965a:45, fig. 13.
8. Karageorghis 1958:129, nos. 8/12, 8/45.

resemblance to any piece so far discussed. Number 8/12 is comparable to LM RR619/21, though the number of rivets differs[1], but the second knife, no. 8/45 is so far unique in southern Cyprus. It belongs to Stewart's Type A Va3[2] current from E.C.I to L.C.I.

RAT-TANGED WEAPONS

Securely provenanced rat-tanged weapons from the south coast region between Kalavassos and Kissonerga are rare. The M.C. cemetery at Kissonerga Ammoudhia which has suffered from looting for over 40 years, has provided the largest sample with at least 10 objects[3] - 7 of which are dagger/spearheads - having been recovered by the Department of Antiquities. In contrast with this local wealth of rat-tang weapons, the Limassol District only produced 3 dagger/spear-heads and one sword, supplemented by another sword known to have originated from a Pyrgos tomb[4], plus two dagger/spearheads and a sword from nearby Kalavassos[5].

Swords are arbitrarily designated as rat-tanged weapons exceeding 39 cm. in length[6].

DAGGER/SPEARHEAD

Ph. M25. Phaneromeni Tomb 23e. Copper dagger/spearhead. Fig. 49. L. 18.5 cm., W. 3 cm., Th. 1.5 cm.

The straight shoulders are slightly narrower than the maximum width of the triangular blade with a rounded tip. The tang, square in section, tapers slightly towards the hooked terminal with a

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1. No.12 belongs to Stewart's Type A IIIb - E.C.I-M.C.III. He lists 61 examples in the Corpus. 2. "Tangless knives with 3 rivet holes". He lists 41 examples of this type in the Corpus. Note that all the rat-tang weapons from Akhera Pendaya and the Pera hoard have simple hooked tangs, Cf.: Karageorghis 1965a, fig.18;29; Astrom 1977, figs.10-16. See also: Catling 1964, Fig.12. 3. All these objects are now in the Paphos Museum. 4. Sword LM RR520/1 was donated to the Museum by a villager from Pyrgos who "retrieved it from a tomb many years ago". 5. Karageorghis 1958:129, Tomb 8/10. 6. Stewart 1962:245; Astrom 1972a: 136 n.1; Catling 1964:56; Stronach 1957:104, describes these weapons as "spearheads".

thickened end bent at right-angles to the line of the blade. The terminal measures 0.8 cm. across, versus 0.6 cm. for the minimum width of the tang. A thin strip of vegetable matter or leather[1], 1.5 mm. wide, was wound spiral-wise from the shoulders upwards. A prominent mid-rib, rhomboidal in section, runs the full length of the blade, and shows traces of heavy hammering.

Not surprisingly, the best comparisons with M25 were excavated by Weinberg in the same cemetery and recorded as B1 and B2 (see below). This exact shape is not recorded elsewhere in Cyprus[2]. The straight shoulders, thickened rat-tang terminal and sharply tapering blade, are all archaizing features, and Stewart's dagger of Type A IBa[3] with "Straight shoulders" is of E.C.I and E.C.IIIB-M.C.I date. Neither Astrom[4] nor Catling[5] list any comparable examples.

So-called "rectangular stud terminals[6] found at Vounous and Lapithos from E.C.II to M.C.II are more carefully shaped than our piece. Most M.C. daggers/spearheads have thin terminals made simply by curling back the pointed end of the tang[7]. The proportionally broad shoulders in relation to the width of the blade are more usual for Philia and E.C. weapons[8]. Though M.C. anachronisms do exist[9], the trend was clearly towards the long, narrow and gradually tapering blades of L.C.[10].

In conclusion one must stress the originality of M25, which cannot be interpreted as an eclectic regional variation of an established

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1. The material was not spun or twisted. See in this connection Catling 1964:56; Atrom 1972a:243 n.13, who also mentions traces of binding material and wood on the tang of a dagger from Pera (1977:21 n.28). It is difficult to see the reason for wrapping a strip of gut, leather or some other material around the tang if it were to be set in a wooden handle or haft. Also of note is the fact that so many instances of this practice are recorded, and that leather is always mentioned, never twine. 2. Swing 1976:49 no.14. 3. Stewart 1962:350. 4. Astrom 1972a. 5. Catling 1964. 6. Catling 1964:57. 7. Astrom 1972a fig.9; Catling 1964 fig.2. 8. Stewart 1962 fig.97,98; Catling 1964 fig.1. 9.Catling 1964 fig.1:8,9. 10. Catling 1964:12; Karageorghis 1965$_A$; figs. 18;29.

type. In the final analysis, it resembles best the "Hooked-tanged weapons" of Stewart's Type A IBa[1] with straight shoulders, in use from E.C.I to E.C.IIIB-M.C.I. Whether the smith who manufactured this piece and the other two weapons from cemetery C was local, or whether these objects wer imported, we do not know, but they have no obvious prototypes and fail to compare with finds from Kalavassos, Pyrgos, Limassol or Kissonerga.

Ph. B1. Phaneromeni Tomb 10, No.8. Dagger/spearhead. L. 30.7 cm., W. 5.5 cm.

Excavated by Weinberg. See Duryea 1965:30, Pl. LXVI:1; Weinberg 1956 fig. 12. Duryea describes the dagger/spearhead in the following terms: "Rounded straight shoulder, well tapered tang, rectangular in section, with a hooked terminal at right angles to line of blade, and thickened at end. Prominent mid-rib, rhomboidal in section". Though larger than M25, it would appear from the photograph that the shape of the shoulders, bent back terminal and blade, are all reminiscent of the former and should be classified accordingly.

Ph. B6. Phaneromeni Tomb 12, No.26. Dagger/spearhead. L.23.5 cm., W.4.1 cm.

Excavated by Weinberg. See Duryea 1965:52, Pl. LXVI:2. Duryea describes it in the following terms: "Shoulders almost heart shaped, difficult to tell if original shape. Tang rectangular in section at top and more rounded near shoulder". From the photograph B6 appears morphologically identical to M25, and therefore must be classified as B1 above.

LM RR211/7. Limassol. Copper dagger/spearhead. Fig. 49. L. 29 cm., W. 4.1 cm., Th. 0.8 cm.

The rounded shoulders have a notch 0.5 cm. deep but no groove, and the tang, sub-rectangular in section, lacks the ubiquitous hooked terminal[2]. At the juncture of tang and shoulders, the former is oval

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1. Stewart 1962. He lists 4 examples in the Corpus, mostly with "button tangs". 2. The tang, and indeed the whole weapon is well preserved and the lack of hooked terminal cannot be attributed to damage. The straight pointed tang is obviously intentional.

in section and wrapped around with a folded strip of leather or vegetable matter, 0.4 cm. wide and 0.15 cm. thick. A prounounced mid-rib, rhomboidal in section, runs the full length of the sharply tapering blade, and the impression of a piece of vegetable matter - or leather - runs diagonally across the lower half (see fig.49).

It is difficult at this stage to assess the significance, if any, of the unique straight rat-tanged terminal[1]. This type certainly does not belong to Stewart's Type A IIa[2] "Straight rectangular-tanged weapons", and is best viewed an an unusual varient of Astrom's Type I 2[3] and Stewart's Type A IBd[4] "Hook-tanged weapons with notched shoulders" dated from E.C.III to M.C.III. It also fits satisfactorily into Catling's broader Type C[5] of E.C.III to M.C.III date.

LM RR611/17. Limassol. Tin bronze dagger/spearhead. Fig. 49. L. 24.2 cm., W. 3.8 cm., Th. 0.7 cm.

The slightly rounded shoulders have a broad notch, but no groove either side of the tang, which has a rectangular section and a thin hooked terminal. A strip of leather? was wrapped spiralwise around the lower tang, which also shows evidence of hammering. A low midrib, rhomboidal in section, extends to the thickened ogival point. Though differing slightly in shoulder type from LM RR211/7, the present weapon belongs to the same category.

PM2141/58. Kissonerga. Dagger/spearhead. L. 32 cm., W. 4.2 cm., Th. 1.2 cm.

The slightly angular notched shoulders are without grooves either side of the prounounced rhomboidal midrib, which terminates with a thickened point, oval in section. The tang is round in section at the shoulders, then square towards the hooked terminal.

This weapon may be attributed to the same type as those preceding.

To the corpus of southern Cypriot dagger/spearheads must be added two pieces from Kalavassos Tomb 8, published by Karageorghis[6].

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1. There are no published examples of this type from the Cypriot B.A. 2. Stewart 1962:350. 3. Astrom 1972a:136. 4. Stewart 1962:350. He lists 7 examples of this type in the Corpus. 5. Catling 1964, "Rat-tanged weapons with angular heart shaped shoulders". 6. Karageorghis 1958:129.

No. 8/10 is 32.8 cm. long and belongs to Stewart's Type A IBe[1] of E.C.IIIB to M.C.III date; no. 8/32 is 37 cm. long and belongs to the same type.

SWORD

LM RR619/19. Anoyira Peralijithias. Unstratified. Copper sword. Fig. 50. L. 46.4 cm., W. 5.2 cm., Th. 1.2 cm.

The sloping shoulders have pronounced notches prolonged by grooves extending 6 cm. down either side of the high rhomboidal midrib. A strip of leather? was wound around the thick tang, circular in section near the shoulders, then becoming square towards the hooked terminal. No scars or evidence of sharpening are visible on the straight edged blade. One side of the blade shows the well preserved impression of hair. The fineness of the individual strands suggest it might be human. Unfortunately there is no contextual evidence on the provenance of this piece.

Astrom classifies such weapons as Type I 3[2] with "Mid-rib, hooked tang sloping or rounded shoulders with notches at the shoulders and grooves along the mid-rib", dated to the whole of M.C. Stewart's Type A Ie[3] "Notched and grooved shoulders" is first recorded in E.C.IIIB, and continues into M.C.II. It also belongs to Catling's Group C[4].

LM RR520/1. Pyrgos. Unstratified. Copper sword. Fig. 50. Original L. 40 cm., W. 4.9 cm., Th. 1.3 cm.

The rounded shoulders have notches but no lateral grooves extending either side of the pronounced mid-rib, rhomboidal in section. Rather a short narrow tang ends in a vestigial hook, and the tip of the blade is also bent at right angles to the line of the blade. This was probably done intentionally following a custom quite popular in the north of the island.[5]

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1. Stewart 1962:350. He lists 25 pieces of this type in the Corpus. 2. Astrom 1972a:136. 3. Stewart 1962:349. He lists 9 examples of this type in the Corpus. 4. Catling 1964:57. 5. Stewart 1962:294.

This piece belongs to Astrom's Type I 2[1] "Blade with sloping or rounded shoulders and notches at the shoulders", dated M.C.I-III, and Stewart's Type A Id[2] "Notched shoulders" of E.C.IIIB to M.C.I date. For Catling it is in the same group as above.

Karageorghis[3] publishes a sword 8/11 from Tomb 8 at Kalavassos which is of the same type as LM RR619/19, though slightly shorter - L. 40 cm.

RAZOR (?)

PM2142/9. Kissonerga. Razor? Fig. 50. L. 8.2 cm., W. 1.8 cm., Th. (haft) 0.3 cm., Th. (blade) 0.1 cm.

The long narrow tapering tang is rectangular in section, and the concave blade has sloping shoulders and a pointed end. The shape of the cutting edges appears to be intentional and not the result of wear.

Identification of this object as a razor is questionable, although it does best fit this category. The shape is unique in Cyprus, and might belong to a specialised tool of an unrecorded type - an unlikely assumption - or a typological misfit. The tang, for example, compares well with those of Stewart's "Blades for scraping", Type B IICb1, whereas the concave blade belongs to Type B IICd2, and the pointed extremity is of Type B IA "Flat tapered blades with pointed ends"[4]. The eclectic nature of the razor? is again evident in comparison with the M.C. scrapers of generally larger size published by Astrom[5]. One such blade is either intentionally concave or worn to that shape, and two others[6] might have been concave, but are too poorly preserved to be certain; in addition, one of these is slightly pointed.

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1. Astrom 1972a:136. 2. 1962:349. He lists 7 examples of this type in the Corpus. 3. Karageorghis 1958:129, no.11, described as a "Dagger blade", but according to our criteria it should be classified as a sword. 4. Stewart 1962:350. 5. 1972a:142, fig. 11:2-8. 6. Astrom 1972a fig. 11, the concave blade is no.8, the poorly preserved blades are nos. 4 and 5, the latter is also slightly pointed.

All L.C.IA razors or scrapers have similar tangs, usually combined with elongated blades. and in one instance, concave cutting edges[1]. Although pointed ends are unrecorded, razors of the period compare quite favourably with PM2142/9 in shape and size, with an average length of 10.1 cm.

In his general comments on different razor types, Catling[2] writes that "There seems to be little, if any chronological significance" in the different shapes of tang, shoulders and blade. The present study, notwithstanding the limited material available, suggests the M.C.III and L.C.I razors are typically of Astrom's Type 2, with long narrow tangs and bodies. The category is apparently unrepresented in E.C.IIIA[3]. Of the 10 published examples[4], one is M.C.I, another is M.C.II to III, two are M.C.III and 5 are L.C.IA. The list is concluded by a L.C.IA razor[5] with an identical tang and a broad blade of a type commonly found in E.C.III.

PM 2141/59. Kissonerga. Razor, scraper? Fig.50. L. 4.2 cm., W. 1.4 cm., Th. 0.1 cm.

The tang is broken at the point of juncture with the thin asymmetrical round ended blade, without mid-rib.

There is no exact parallel for this object, the purpose of which is unknown. Razors tend to have straight ended rectangular[6] blades, whereas Stewart's[7] "Blades for scraping" have points in common with this piece. They are current throughout the E. and M.C.[8]

LM RR608/36. Limassol. Copper razor. One side of the blade damaged

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1. For scrapers see Astrom 1972c:485. Ay. Iakovos Tomb 8/1:90, fig.62: 8, p.828 for the date; Karageorghis 1965a, fig. 15:44, 75 (tang missing) 103; fig. 30:35. In his survey of E.C. and M.C. metal, Catling omitted the separate classification of this type. His Class d corresponds to Astrom's (1972a) Type 1. 2. Catling 1962:67. 3. Stewart 1962:351. Note the "Philia Culture" razor 1957:26 in the Ashmolean Museum, with a narrow tang and wide body. 4. Excluding PM2142/9 cf.: Astrom 1972a: 141 who lists 4, Astrom 1972c:485 who lists 2, but not that from Akhera T. 1 published with the remaining 4 by Karageorghis: 1965a. 5. Karageorghis 1965a, fig.15:44. 6.Astrom 1972a, fig.11; Stewart 1962, fig. 100. 7. Stewart 1962:350. 8. Op.cit., Type BIA.

by corrosion. L. 10.6 cm., W. 2.3 cm., Th. 0.2 cm.

Long, narrow, slightly concave straight ended blade with sloping shoulders and a narrow flat tang with a rivet hole at the extremity. The blade has a very slight mid-rib.

This piece belongs to Astrom's Type 1 b[1] "Flat, narrow roughly rectangular tang with one rivet-hole", dated from M.C.I-II and possibly later. It is Stewart's Type B IId2[2] of E.C.IIIA-M.C.III date.

PIN

Typical of an island-wide pattern (cf. p.185n.5), pins are the most common metal type in the area under discussion. They normally have a well differentiated, swelling head, a round tapering shaft and sharp point. All belong to types most common in the M.C. period (see tab. 2), which is not surprising in view of their rarity in pre-E.C.III contexts[3].

Ph. M2. Phaneromeni Tomb 25b. Arsenical copper pin. Fig. 51.
L. (pres) 9.5 cm., D. of head 1.1 cm., D. of shaft 0.5 cm.

The pin was heavily corroded when excavated and the biconical knobbed head might initially have been a slightly different shape, though never perfectly spherical or conical. The shaft is circular in section.

There are no published parallels for this type; the Limassol and Paphos District Museum collections have a single example of comparable shape but smaller size: LM RR121/21, described below.

Ph. B4. Phaneromeni Tomb 7a, no.10. Arsenical copper pin. Fig.51.
L. 21 cm., D. of head 0.9 cm., D. of shaft 0.5 cm.

Excavated by Weinberg. The pin is now in the Curium House Museum, and available for study. Its head is truely conical, with the base of the cone intersecting with the shaft at right angles.

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1. Astrom 1972a:141 described as a scraper. 2. Stewart 1962:350. He lists 11 examples in the Corpus. 3. The only pins of an earlier date listed by Stewart (1962:353) are those with "Quadrangular heads" and "Toggle pins".

This feature contrasts with the two "almost conical" pins published by Astrom[1] whose heads gradually coalesce with the shaft.

Although B4 is not exactly comparable to any of Astroms categories, the nearest shape is his Type 9[2] "Almost conical head" fround throughout the M.C., or Stewart's Type O Ij[3] "Domed head", dated from E.C.IIIB to M.C.II-III. The only true parallel for this shape is a toggle-pin from Tomb 1 at Akhera[4] of L.C.IA date. The same tomb contained another toggle-pin with elongated conical head (no.5), closely resembling a pair of slightly earlier ones from Pendaya Tomb 1[5].

Ph. B2. Phaneromeni Tomb 7b, no. 2. Pin. L. 10.9 cm., D. of head 0.5 cm., D. of shaft 0.5 cm.

Excavated by Weinberg and described by Duryea[6] as having a "distinct domed top". From a careful study of the photograph the head does not appear truly conical, but resembles Astrom's Type 10[7] "Almost conical necked head", dated to M.C.II or III, and Stewart's Type O Ik[8a] "Necked domed head" of E.C.IIIB-M.C.III date.

Ph. B3. Phaneromeni Tomb 7b no.3. Pin L. 13.2 cm., D. of head 0.6 cm., D. of shaft 0.5 cm.

Excavated by Weinberg and described by Duryea[8] as having a "somewhat worn domed top, not absolutely distinct". It belongs to the same category as B2 above.

Ph. B5. Phaneromeni Tomb 4b no.7. Arsenical copper pin. Fig.51. L. 7.5 cm., D. 0.4 cm.

Excavated by Weinberg, the pin is now in the Curium House Museum and available for study. It was originally described by Duryea as "a bronze pin with curved top"[9] who omitted to mention that the top was flattened, therefore slightly broader than the shaft. The shape of the head is intentional and not the result of accidental bending or breakage.

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1. Astrom 1972a, fig. 12:11, 12. 2. Astrom 1972a:144, fig. 12:11. 3. Stewart 1962:352, fig. 102:11, 12. 4. Karageorghis 1965a, fig.30:75. 5. Op.cit. fig. 15:9-10. 6. Duryea 1965:25. 7. Astrom 1972a, fig. 12:12. 8. Duryea 1965:25. 8a. Stewart 1962:353. 9. Duryea 1965:11.

The single pin with a crooked head mentioned by Astrom does not resemble B5 in the least[1]. No other pins of this type seem to have been recorded, though an object described as an "awl ... bent at one end"[1a] from Pera is morphologically comparable. Unlike most awls which at least partially quadrangular in section, this piece is entirely cylindrical. It should not, however, be confused with Stewart's pins with a "Hooked head", Type O It[2].

Ph. M1. Phaneromeni. Tomb 23b. Pin. Fig. 51. L. 14.4 cm., W. of head 0.7 cm., Th. of head 0.3 cm., D. of body 0.4. cm.

The thickness of the plain flattened head is slightly less than the diameter of the body: it was made by simply hammering the originally swollen head of the pin.

There are no published examples of this shape.

Ph. M29. Phaneromeni. Room 3. Copper pin. Fig. 51. L. (pres.) 8.8 cm., W. of head 0.7 cm., Th. of head 0.2 cm., W. of square body below head 0.5 cm.

The plain flattened head was made by simply hammering one end of the shaft. There are no published examples of this shape.

Ph. M58. Phaneromeni. Room 9. Copper pin. Fig. 51. L. 6 cm., W. of head 0.55cm., Th. of head 0.25 cm.

The plain flattened head was made in the same manner as M29, though the body remains circular in section. There are no published examples of this shape.

Ph. M49. Phaneromeni. Room 3. Arsenical copper pin. Fig. 51. L. 5.4 cm., W. of head 0.5 cm., D. of shaft 0.3 cm.

The flattened head was made in the same way as M29. Starting at 1.5 cm. from the head, two opposing sides of the shaft have been hammered, so producing an oval section which is not on the same plane as the head. The flattened extremity is sharp, suggesting the pin might have served as a spatula. Dual functions were certainly intended for the spatulae published by Astrom[3], dated from M.C.I. to III.

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1. Astrom 1972a:146, Type 23. Possibly a deformed loop head pin.
1a. Astrom 1977:32, no.100, fig. 24:100. 2. Stewart 1962:352.
3. Astrom 1972a:142, Type 1.

M49 does not resemble Stewart's Type O Ig[1] with "spatulate head". This simple form has not been found in the L.C.

Limassol District Museum owns a number of pins recovered from B.A. burials between Pyrgos and Episkopi, which, with the exception of Types 1 and 2, can be classified according to the typology established by Astrom[2].

1. Pin with biconical head: 1 example.
2. Pin with quadrangular convex head: 1 example.
3. Pin with conical necked head: 2 examples.
4. Pin with plain head: 4 examples.
5. Pin with flat head: 3 examples.
6. Pin with mushroom or concave head: 1 example.
7. Pin with convex head: 1 example.
8. Toggle-pin with plain head: 1 example.

1. Pin with biconical head.

LM RR121/21. Pyrgos. Fig. 52. L. 18.5 cm., D. of head 0.75 cm. D. of body 0.25 cm.

The head is truly biconical, with a long thin body. The shape comes closer to B4 from Phaneromeni than any other, though it should be remembered that the former is conical and not biconical.

There are no published examples of this shape.

2. Pin with quadrangular convex head.

LM RR608/33. Limassol. Copper. Fig. 51. L. 10 cm., D. of head 0.6 cm., D. of shaft 0.4 cm.

The longitudinal section of the head is convex, the lateral section quadrangular. The juncture between neck and shaft is slightly

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1. Stewart 1962:352. 2. Astrom 1972a:144, 146.

necked, and the latter remains square for a distance of 4.5 cm. from the head. The shape of head most closely resembles Stewart's Type O Ie[1] "Necked quadrangular head" dated E.C.IIIB- M.C.II.

3. Pin with conical necked head. Astrom's Type 10[2]. Not recorded in Stewart's Corpus.

LM RR351/1. Pyrogos. Fig. 52. L. 18.3 cm., D. of head 1 cm., D. of shaft 0.6 cm.

LM RR352/2. Pyrgos. Fig. 52. L. (pres.) 20.5 cm., D. of head 1 cm., D. of shaft 0.6 cm.

Astrom dates this type to M.C.II or III[3].

4. Pin with plain head. Astrom's Type 1[4], Stewart's Type O Ia[5].

LM RR151/12. Limassol. L. 20 cm., D. of head 0.6 cm., D. of shaft 0.5 cm.

The lower half of the shaft shows two impressions of square woven cloth made of a thread 0.6 mm. thick.

LM RR211/23. Limassol. Tin bronze. Fig. 52. L. 28 cm., D. of head 1 cm., D. of body 0.45 cm.

Although this pin is classified as type 4, it is intermediary between the contemporary types 4 and 7. It is also unusual in having a square shaft starting at about 8 cm. from the head. A well preserved impression of a strand of thread is wound around the shaft 5 cm. from the tip.

LM RR211/12. Limassol. Copper. Fig. 52. L. 18.2 cm., D of head 0.5 cm., D. of shaft 0.4 cm., D. of perforation 0.1 mm.

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1. Stewart 1962:352. He lists 2 examples in the Corpus. 2. Astrom 1972a:144, fig. 12:11. 3. Astrom 1972a:200. 4. Astrom 1972a:144, fig.12.1. 5. Stewart 1962: fig. 102:4, 5. He lists 9 examples of this type in the Corpus.

This pin is peculiar in having a small hole pierced diagonally from the flat top of the head to one side, a feature hitherto unrecorded.

LM RR211/13. Limassol. Tin bronze. Fig. 52. L. 12 cm., D. of head 0.7 cm., D. of shaft 0.4. cm.

This pin has a slightly enlarged head, and, as such, is a combination of Astrom's Types 1 and 16[1].

The above mentioned pins belong to Astrom Type 1, current throughout the M.C., with emphasis on the earlier periods[2]. His Type 16 can be assigned to M.C.II or III; Stewart's pins of Type O Ia and O Ic are found from E.C.IIIB to M.C.II[3].

5. Pin with flat head. Astrom's Type 16[4].

LM RR149/10. Limassol. Fig. 52. L. 21.5 cm., D. of head 1.5 cm., D. of shaft 0.5 cm.

LM RR149/17. Limassol. L. 13.3 cm., D. of head 0.9 cm., D. of shaft 0.35 cm.

LM RR235/48. Limassol. Fig. 52. L. 13 cm., D. of head 0.9 cm., D. of shaft 0.4 cm.

This type of nail headed pin is dated by Astrom to M.C.II or III[5].

6. Pin with mushroom head.

LM RR235/47. Limassol. Copper. Fig. 52. L. (pres.) 15.3 cm., D. of head 1.2 cm., D. of shaft 0.6 cm.

There is a well preserved cloth impression towards the end of the shank. Although the domed head is slightly concave on the underside, it resembles mushroom headed pins more closely than those with button

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1. Astrom 1972a:, fig. 12:20. 2. Astrom 1972a:200. 3. Stewart 1962:352. 4. Astrom 1972a:145, fig.12:20. This shape is a more evolved version of Stewart's (1962:353) Type O Ih "Nail head pin". He lists 8 examples of this type in the Corpus. 5. Astrom 1972a:200. Stewart attributes Type O Ih to E.C.IIIB-M.C.I (Op.cit.).

heads. According to both Astrom[1] and Stewart[2] the only pins of this type were fitted with toggles. Toggle pins are known from the beginning of E.C.[3], but the mushroom head does not occur before M.C.II[4], which provides us with a terminus ante quem for our example. The type is especially popular in M.C.III.

7. Pin with convex head. Astrom's Type 7[5] compares well with this type, though Stewart's Type O Ij[6] belongs to the same general class. LM RR382/13. Limassol. L. 8 cm., D. 0.4 cm.

The rounded end and unusually thick shaft suggest it might have been broken in antiquity. There is a cloth impression midway along the shaft.

According to Astrom and Stewart[7], convex heads are in vogue throughout the M.C., after their initial appearance in E.C.IIIB.

8. Toggle-pin with flat head. Astrom's Type 1[8] and Stewart's Type O Ig[9].

LM RR211/3. Limassol. Copper. Fig. 52. L. 20 cm., D. of head 0.65 cm.

The small oval hole was punched or cast in the middle of a concave depression, but not drilled.

Astrom[10] dates this type mainly to M.C.II-III, but with possible occurrences in M.C.I, and Stewart[11] notes that it is found from E.C.IIIB to L.C.I.

Unclassified, fragmentary.

LM RR151/2. Limassol. L. (pres.) 10 cm., D. of shaft 0.5 cm. Head missing.

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1. Astrom 1972a. 2. Stewart 1962. 3. Stewart 1962:352. 4. Astrom 1972a 201-2. 5. Astrom 1972a:142, fig.12:8. 6. Stewart 1962, fig.102:11,12. He lists 11 examples of this type in the Corpus. 7. Astrom 1972a:200; Stewart 1962:353. 8. 1972a:146. 9. Stewart 1962:353. He lists 3 examples of this type in the Corpus. 10. Astrom 1972a:201. 11. Stewart 1962:353.

LM RR151/3. Limassol. L. (pres.) 15.3 cm., D. 0.4 cm. Both ends missing. The middle has been flattened like a toggle-pin, but no piercing is visible.

NEEDLE

The needles from Phaneromeni call for little comment. Similar pieces are well attested from E.C. onwards[1]. As might be expected, the settlement produced a few of these small easily mislaid objects. Only 3 were stratified, but they are complemented by an equal number from disturbed contexts.

Ph. M18. Phaneromeni. Area 24. Fig. 51. L. (approx.) 10 cm., D. 0.15 cm.

The eye was pierced in the well flattened extremity of the shaft.

Ph. M45. Phaneromeni. Area 25. L. (pres.) 8 cm., D. 0.1 cm.

Long thin needle broken at the eye.

Ph. M55. Phaneromeni. Room 19. Fig. 51. L. 10.1 cm., D. 0.15 cm.

Long thin needle with an oval eye, pierced 0.9 cm. from the end. Both extremities are pointed. A slightly unusual shape not occurring in Early or Middle Cypriot, it is first recorded at Akhera Tomb 1[2], and later at Ayios Yiakovos[3] and Enkomi Ayios Iakovos Level IIIA[4].

Ph. M28. Tomb 23d. Fig. 51. Copper needle with lead inclusions. L. (pres.) 16.2 cm., W. of head 0.5 cm., Th. of head 0.2 cm., D. 0.3cm.

This large needle lay at right-angles to the back of the female skull of the main burial. The eye had been broken in antiquity, and this fact combined with the findspot, suggests it had served as a

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1. Stewart 1962:352. He lists 71 examples in the Corpus. Astrom (1972a:249) mentions that "Needles occur almost everywhere in almost any period". 2. Karageorghis 1965a, fig. 30:47. 3. Astrom 1972c, fig. 62:19. 4. Dikaios 1969c, pl. 163:1 (1545).

hairpin for the deceased.

Both in shape and size this piece is very similar to a M.C.I needle from Lapithos Tomb 313b[II 1].

Needles occur quite frequently in Limassol District burials. It seems they were never deposited singularly, but in groups of two or more, and the 14 needles recorded are distributed between 5 burial groups.

LM RR149/8. Limassol. L. 5 cm., D. 0.2 cm. Short and stubby, with a small round eye.

LM RR 149/15. Limassol. L. (pres.) 6.3 cm., D. 0.2 cm. Broken at eye.

LM RR 149/44. Limassol. L 9.8 cm., D. 0.3 cm. Well preserved eye 3 x 1 mm.

LM RR151/4, 5, 6. Limassol. Three small fragments of wire recorded as "needles" although no eyes were preserved. They do not appear to belong to the same shaft.

LM RR151/13. Limassol. L. 5.6 cm., D. 0.25 cm. Broken at eye.

LM RR151/14. Limassol. Small fragment of the tip? No eye. This piece could belong to 4, 5, or 6 above.

LM RR211/10, 11. Fig. 52. Limassol. Fragments of 2 needles with eyes.

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1. Astrom 1972a:142, fig. 11:13. Note that this needle has an oval section, whereas M21 is circular.

LM RR235/41. Limassol. L. (pres.) 5.8 cm., W. 0.21 cm., Th. 0.15 cm. Flat and rectangular in section. Broken at eye.

LM RR235/49. Limassol. Fig. 52. L. 6.5 cm., D. 0.2 cm. Eye missing. Very clear cloth impressions of straight woven material wrapped around the shaft.

LM RR383/26. Limassol. L. 7.6 cm., D. 0.2 cm. Well defined eye ca. 3 mm. long. Blunt end.

LM RR383/27. Limassol. L. 7.1 cm., D. 0.25 cm. Well defined, flattened eye ca. 3 mm. long. Pointed end.

AWL

Awls, like needles are simple functional objects, usually lacking in diagnostic features. Those from Phaneromeni are no exception. Only two were recovered - which is surprising for a settlement - and of these one is unstratified!

Ph. M30. Phaneromeni Room 3. Arsenical tin copper alloy. Fig. 51. L. 6.2 cm., W. 0.3 cm. The shank is approximately quadrangular in section, especially the tang. The other extremity is rounder and more pointed. This description corresponds exactly to Astrom's[1] and Stewart's[2] definition of an awl.

Ph. M31. Phaneromeni, A12 Lot 1. L. 5 cm., W. 0.3 cm. Though unstratified, M31 resembles the previous awl so closely that it can probably be considered as contemporary. Approximately square in section, the tang is thicker and less tapering than the other more rounded extremity.

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1. Astrom 1972a:142. 2. Stewart 1962:352, Type E a.

Apart from one example in E.C.I and 3 in E.C.IIIB, awls are rare in the E.C.[1] Astrom[2] records 14 in M.C., plus an additional 7 from the Pera hoard[3], and he mentions, as expected, that awls span the whole period. The same is true of the L.C., with a number of specimens recorded[4]. M30 and 31 are identical in every respect to other Cypriot awls, and their amorphous shape is of little chronological or typological value.

Other sites in the south have produced a number of awls of similar manufacture.

LM RR121/51. Pyrgos. Copper. L. 7.7 cm., W.0.6 cm., Th. 0.5 cm. Typically, the tapered quadrangular haft contrasts with a sharp round point.

LM RR533/10. Limassol. Fig. 52. Copper. L. 7 cm., W. 0.35 cm. This specimen is similar to that above.

A comparable awl was excavated in the L.C.IA2 level at Bamboula[5]; it is quadrangular in section with one end flat and the other pointed.

NAIL, TACK

Ph. M56. Phaneromeni, Area 21. Nail or tack. Fig. 51. L. 1.75 cm., W. 0.25 cm., Th. 0.2 cm. This small tack-shaped object is rectangular in section with a carefully hammered point. The other extremity appears to have been cut, as if with a cold chisel or a pair of pincers. There is no evidence of hammering on the blunt end, which rather argues against the interpretation as a nail, unless, of course, it was unused! There are no Cypriot parallels for this minor object.

Ph. M17. Phaneromeni Area 21. Copper nail. Fig. 51. L. 1.9 cm.,

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1. Stewart 1962:250. Of the 41 awls listed in the Corpus, two are E.C., 29 M.C. and 9 remain undated. 2. Astrom 1972a:142, fig.11:15,16; p.200. 3. Astrom 1977. 4. Astrom 1972c:485, fig.62:12,13; p.562. 5. Benson 1972:125, pl. 34:1250.

original length 2.2. cm., D. of head 1.1 cm., D. of shank 0.25 cm. It has a flat circular head, a roughly squared shank and a blunt end. The broad head and longish shaft of M17 suggests its role was both decorative and functional, as the shaft is unnecessarily long if it was only required to keep the large head in position. Since no associated objects were recovered with M17, we cannot be more specific as to its possible function. Although no nails have been recorded for the E.C. or M.C., it does not prove that none existed. Unless nails were used for decorative purposes or in the manufacture of funerary offerings - especially furniture - they are not likely to be recovered before the L.C. period, which no longer relies so heavily on funerary material.

Excluding Enkomi Ayios Iakovos, however, there are only 3 recorded occurrences[1] all of L.C.IIIB date or later, and the purpose of these nails was probably decorative. Level IIB at Enkomi yielded a mushroom headed nail[2] and Level III another 8[3].

AXE

LM RR149/43. Limassol. Tin bronze flat axe. Fig. 52. L. 5.9 cm., W. (max) 3.3 cm., W. (min.) 1.6 cm., Th. 0.6 cm.

This small trapezoidal flat axe has a semicircular blade without flanges, and a narrow concave butt. The sides show signs of vigorous hammering, which has resulted in the formation of two low ridges - caused by the lateral expansion of the metal - running parallel with the edge. They are visible on both faces. The relative hardness of the metal, as noticed during sampling, is certainly the result of unannealed, or partially unannealed coldwork.

Elongated flat axes are common in Early, and to a lesser extent Middle Cypriot contexts[4], but scarce in the L.C.[5] LM RR149/43 compares both with the smaller examples of Astrom's Type 1[6], and

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1. Astrom 1972c:491, 563. 2. Dikaios 1969c, pl.130:13.(3085); pl.157:31. 3. Op.cit. p.462, 468. 4. Stewart 1962:251; Astrom 1972a:138. 5. Catling 1964:85; Astrom 1972c:480. 6. Astrom 1972c, pl.61:4.

with Type 3 "Upwards tapering axe; curved cutting edge..."[1]. A number of flat axes are associated with the Pera hoard[2], though none resemble closely the Limassol piece. Little chronological significance can be attached to these simple tools of common, widespread occurrence[3], dated from E.C. onwards.

DEPILATORY TWEEZERS

Depilatory tweezers are very rare in southern Cyprus, as only one pair from Limassol and 3 from looted tombs at Anoyira Peralijithias have been recorded to date.

LM RR211/8. Limassol. Copper tweezers. Fig. 48. L. 8 cm., W. of shaft 0.6 cm., W. of extremity 2.2 cm., Th. 0.1 cm. The simple bow-shaped body has straight arms with expanding ends. This shape belongs to Astrom's[4] Type 1, dated from M.C.I-III, and Stewart's Type G a of M.C.I-II date[5].

LM RR619/22. Anoyira Peralijithias. Tin bronze tweezers. Fig. 48. L. 9.4 cm., W. 2.2 cm., Th. 0.1 cm. The pinched top with straight, gradually expanding arms resemble Astrom's [6] Type 2 of post E.C.III date, and Stewart's similarly dated Type G b2[7].

LM RR619/23. Anoyira Peralijithias. Tweezers. Fig. 48. L. 7.6 cm., W. of extremity 2.2 cm., Th. 0.1 cm. These tweezers belong to the same type as above.

LM RR619/24. Anoyira Peralijithias. Tweezers. Fig.48. L. 6.6 cm.,

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1. Astrom 1972a, fig.10:3. 2. Astrom 1977, figs.1,2,9. 3. Astrom 1972a 244. 4. Astrom 1972a:142, 200. 5. Stewart 1962:352. He lists 31 examples of this type in the Corpus. 6. Astrom 1972a:142. 7. Stewart 1962:352. He lists 39 examples of this type in the Corpus.

W. of extremity 1.9 cm., Th. 0.1 cm. The simple bow-shaped body with expanding arms belongs to Atrom's Type 1 and Stewart's Type G a, of E.C.IIIB to L.C.II date.

Tomb 8/24. Kalavassos. Tweezers. Pinched top with straight, gradually expanding arms. These belong to the same type as LM RR619/22 above[1].

In addition to the L.C. tweezers mentioned by L. Astrom[2], and Dikaios[2a], there are 4 items belonging to the Pera hoard[3].

MISCELLANEOUS

Ph. M50. Phaneromeni Room 3. Copper object of uncertain use. Fig. 51. L. 4 cm., W. of head 0.8 cm., Th. of head 0.2 cm., D. of body 0.35 cm. This small spatulate object, forged from a short length of wire, has one flattened and one rounded extremity with an intentionally shaped neck at the juncture with the shaft. The smaller end is also rounded with a sharp edge. No comparisons between M50 and published material are possible, yet it can hardly be unique. Both shape and size suggest an association with cosmetics, for example the mixing and application of khol.

In Egypt, however, khol was usually applied with club-shaped or piriform wooden spatulate[4].

There follows a class of objects best described as ornaments or jewellery, although their function, in most cases, remains to be satisfactorily determined.

LM RR151/71. Spiral. Fig. 52. D. 2.5 to 3.5 cm., W. 0.35 cm., Th.

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1. Karageorghis 1958:129. 2. Astrom 1972c:485. 2a. Dikaios (1971) published 5 pairs of tweezers from Enkomi Ayios Iakovos: L.C.IIB = 1 pair, IIIB = 1 pair, IIIB = 2 pairs; L.C.IIIC = 1 pair. 3. Astrom 1977:32-33. 4. Forbes 1965:19. Hayes 1959, fig. 8.

0.15 cm.

A large number of pieces belonging to flat spirals were recovered from this tomb. Though of similar manufacture to those from Ayios Yiakovos[1] they are considerably larger, therefore unlikely to have formed part of a necklace. Spirals or tubes, made of flat wire, are classified by Astrom as Type 1[2], and Stewart as Type 1[3], dated from E.C.IIIB to the end of L.C.

Catling suggests[4] spirals served as hair ornaments or finger rings. The spirals from LM RR151 are too long and wide to be worn as rings, which supports their interpretation as hair ornaments. Three of the spirals listed by Stewart in the Corpus[5] have diameters of 2.5 or 3 cm., and are too large for use as rings - unless the ancient Cypriots had massive fingers!

The many spirals discovered at Akhera and Pendaya are all smaller, and fashioned from circular instead of flattened wire; the increased weight might have made them inappropriate as hair ornaments but satisfactory for use as finger rings, or even necklaces[6].

LM RR211/25. Limassol. Spiral forming a tube. Fig. 52. The thin strip of metal, about 0.4 cm. wide and 0.1 cm. thick, was wound spiralwise in order to form a tube about 0.4 cm. in diameter. It was interspersed with a few white stone beads wedged inside, or adhering to the outer surface.

A number of similar spirals are recorded by Astrom[7], many of them associated with necklaces, as in the case of LM RR211/25.

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1. Astrom 1972a: fig. 15:8. 2. Astrom 1972a:150. 3. Stewart 1962:352. He lists 9 examples of flattened wire spirals in the Corpus. 4. Catling 1964:74. 5. These 3 spirals are published in Gjerstad 1934:119, 132, 153, pl. XXXI:2, XXXII:7. 6. Karageorghis 1965a:53, 109. 7. Astrom 1972a:150, fig. 15:7.

Tomb 5/14. Kalavossos. Hair ornament? (Two items, one inside the other, are listed under this number). L. 8.5 cm. Trough-shaped piece of sheet metal decorated with rows of punched impressions, with a pointed loop of wire at one end[1]. These objects belong to Stewart's Type J b,[2] dated from E.C.IIIB to M.C.I.

Tomb 5/15. Kalavassos. Hair ornament? L. 13 cm., as no.14.

Tomb 5/17. Kalavassos. Hair ornament; Fragmentary, as no.15.

A wide variety of uses for copper and bronze is suggested by the 6 fragments (M32, 35, 46, 60, 65 and 66) of sheet metal from settlement A at Phaneromeni and a single piece from Limassol (LM RR151/77). The latter might have been part of a hair ornament, but the other pieces are too small and amorphous to classify.

With these fragments we conclude the study of the pre L.C.IB metal objects from the Limassol and Paphos Districts, which convey an impression of limited variety but not abundance.

III DISCUSSION

With specific reference to the excavations at Phaneromeni, the paucity of metal recovered diminishes the value of a comparative study with other regions of Cyprus in particular, and with the Middle East in general. Only 23 objects, of which 19 were stratified, came from Settlement A, and of these the 3 knives alone are sufficiently sophisticated to provide valuable external comparisons of a chronological, technological or typological nature. The remainder are

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1. Karageorghis 1958:124, 126, pl. X a. 2. Stewart 1962:352. He lists 7 examples in the typology including those from Kalavassos.

simple types like pins, needles and awls, unidentifiable fragments, or objects without known parallel.

By the nature of the site this picture must be distorted, for we know Settlement A suffered a thorough looting, and was stripped of all serviceable items, excepting those previously lost, discarded[1] or small enough to remain unnoticed. Notwithstanding the parsimony with which bronze or copper objects were offered to the deceased during the previous (M.C.) period, they were probably readily available, though valuable commodities in the L.C.IA. The two previously mentioned (p. 29) crucible fragments are tangible evidence for the metal-smith's trade in this small rural community, which surely was not only limited to the forging of rather ineffectual knives, awls and items for the manufacture and fastening of garments. Unfortunately the circumstances surrounding the destruction of the settlement did not compel the inhabitants to make caches for their valuables, some of which might have been recovered through archaeological excavation[2].

The contemporary burials at Pendaya, on the far side of the island, were extremely well furnished in bronzes[3], Tombs 1 and 2 contained 46 and 14 respectively. The slightly later internment of Tomb 1 at Akhera[4] had 31 metal objects. The proximity of the great Skouriotissa mines is certainly a factor influencing this wealth of metal, but the image of availability if not abundance should be recorded, to some extent, elsewhere in Cyprus, as it seems unlikely that in an island of this size, one region could have existed in total economic isolation. That some areas were backward or tradition

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1. The discarded objects in this context are those broken or worn and considered as scrap. All scrap would be remelted and cast into new implements. 2. For a L.C.IB hoard of cast hilt dirks at Enkomi c.f. Dikaios 1969a:232. For the latest discussion of Cypriot hoards c.f. Astrom 1977:40ff. 3. Karageorghis 1965a. 4. Op.cit.

bound in certain periods - usually for geographical reasons - is amply documented by a study of the Karpass in the middle of the second millennium B.C.[1], a state of affairs which should not have affected the access to and use of metal for the whole island.

The probable influence of the nearby copper mines on the funerary offerings at Pendaya and Akhera is further enhanced by the results of Dikaios' excavations at contemporary or slightly later levels at Enkomi Ayios Iakovos[2]. In broad terms, between Areas I and III, 1800 sq. m. of L.C.IA remains were uncovered. The architecture, namely the fortress of Area I and the domestic structures in III, covered about 1000 sq. m. A bronze plough shere was the only metal object recovered from both operations. In level IB (L.C.IB) the same horizontal clearance produced a hoard of T shaped dirks, 2 drills, a chisel and a ring.

The thoroughness with which the L.C.IA buildings had been stripped of serviceable items before reuse in L.C.IB, is shown by the scarcity of other non metal finds[3], which only total 19. Nevertheless, one might expect a few small metal objects - awls, pins, needles and the like - to have been overlooked or previously lost, if they were in common use. The evidence suggests that metal was uncommon, if not rare.

The horizontal clearance of Settlement A at Phaneromeni measured about 950 sq. m., 800 of which consisted of buildings. If the L.C.IA levels at Enkomi and Phaneromeni are compared following identical criteria - i.e. size of excavation and volume of material recovered - it should give some idea as to the relative availability of metal at each site.

The dangers of such wholesale comparisons are manifest. So many

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1. Merrillees 1965:140, 147; 1971:64ff. 2. Dikaios 1969a:16 ff.; 153 ff. 3. Dikaios 1971:466.

variables must be taken into account[1] that it is difficult, and often dangerous to draw conclusions from data obtained by these means. In this instance, however, the comparison does emphasize some interesting points: from its foundation in M.C.III[2] Enkomi was an important metallurgical centre[3] located at the juncture of maritime and land trade routes, yet the L.C.I levels were very poor in copper/bronze. If an excavated area over twice that of Phaneromeni A only yielded 11 metal objects, it does argue favourably for the use of copper/bronze at the settlement where 19 stratified pieces were recovered[4].

It is to be regretted that the early levels of Episkopi Bamboula are so poorly preserved, for these might have corroborated the situation at the earlier site to the south. According to Benson[5], the L.C.I level contained a dagger, a pair of tweezers and an awl, though this list probably excluded various unidentified fragments.

With the exception of the Akhera, Pendaya and maybe Pera cemeteries, the impression of a general scarcity of metal is underlined by the corpus of L.C.I tombs assembled by Astrom[6]. Of the 64 tombs listed only 16 contained metal, and in most cases it was only represented by a few pieces[7].

The so called Pera hoard, recently published by Astrom and dated to M.C.III or L.C.I, is perplexing, and stands out in contrast with the rest of the island. Here again, the wealth of metal might be attributable to the proximity of the copper mines, as the site lies 6 km. southeast of Kapedes and 10 km. east of Agrokipia, both villages known for their slag heaps[8]. The circumstances of discovery[9] are

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1. Amongst others, these variables are: nature of site, function of structures, circumstances of abandonment and later disturbances.
2. Dikaios even suggested the town might have been founded earlier in M.C.II(1971:501). 3. See Schaeffer 1952:1; Dikaios 1971:499. 4. The 4 unstratified pieces, namely 3 needles and a pin, almost certainly belong to the settlement. 5. Benson 1972. 6. Astrom 1972b:475-496. 7. The list of tombs mentioned here is slightly arbitrary: those with L.C.I and later material, were not recorded, though some of them might have contained L.C.I bronzes. The L.C.IB tomb at Milia (Westholm 1939:9) contained 20 pieces of metal, mostly fragments of rings. Large objects were scarce and only represented by two knives, the handle of a dagger and a pin. 8. Steinberg 1974:149-150. 9. Astrom 1977:5.

unclear, and its sheer size - more than 100 items - would suggest that the hoard represents a random collection of objects from looted M.C. and early L.C. tombs. A point of minor importance, however, could argue against this interpretation. Many of the knives show signs of wear from sharpening, and although similar blades are known from tomb groups, they are not common according to the published material and that stored in the Limassol and Paphos museums. It would seem that in most instances new or almost new knives accompanied the dead, and presuming the custom was honoured at Pera, it would suggest only a few of the knives could have been funerary offerings. If this assumption is correct, it emphasizes the possibility that the material originated from a hoard[1].

As previously mentioned, funerary offerings of metal are rare during the M.C. in southern Cyprus. From the 6 unlooted[2] or only partially looted tomb chambers[3] excavated by the Missouri and Kent State Universities, only 3 were furnished with weapons[4], and even simple pins and needles of little intrinsic value were rare. The 7 pins and one needle recovered from 7 separate burials imply that most dead were buried without metal trappings of any sort.

This scarcity of metal, in striking contrast with the great north coast cemeteries of Vounous and Lapithos, is reflected elsewhere in southern Cyprus where bronzes are the exception rather than the rule. Out of the 60 B.A. burials stored in the Limassol Museum, a mere 12 contained any metal, and contemporary tombs in the Paphos District show the same pattern. Bronze/copper objects were obviously rare and could not be readily disposed of in funeral offerings, however desirable this might be from a socio-religious standpoint.

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1. This hoard was not a founder's hoard as most of the pieces were still intact and serviceable. 2. Missouri Tomb 7b, Kent Tombs 23d; 25a,c,d; 23e. 3. Missouri Tombs 4b, 7a, 10a, 11, 12 upper and lower.
4. Missouri Tomb 10a, 12 lower; Kent Tomb 23e.

The corpus of pre L.C.IB copper/bronze objects from the south (Tab. 2) only serves to emphasize the oft repeated claims[1] that insularity and conservatism guided the island's metal-industry prior to the 13th century B.C. With the exception of M50, an object of apparently little significance, the assemblage is typically homogeneous with nothing more unexpected than minor improvisions or deviations from the known types. If tools, personal objects and weapons were locally manufactured, the smiths showed little incentive and were content to slavishly follow the metal-working tradition that prevailed elsewhere on the island.

Table 2 also presents the results of 42 new analyses, which considerably increase our knowledge of Cypriot copper/bronze alloying techniques. To this list are appended the analyses of the shaft hole axe from Dhali Kafkallia (LM6294) and the objects excavated by Stewart in the so-called Philia Culture tombs at Vasilia[2] which remain unpublished. (See fig. 53:1).

The metal objects are listed in the same order as described in the text. Find Catalogue numbers of objects from Phaneromeni are prefixed by M (K.S.U. Excavations) or B (University of Missouri Excavations), those from the Limassol Museum are prefixed by LMRR, those from the Paphos Museum are prefixed by PM and the remainder from Dhali Kafkallia, Kalavassos and Vasilia are respectively prefixed by LN, KAL and 1957. Excluding the incompletely published pieces from Vasilia, the chronological span of each item has been shown by a continuous horizontal line. A dotted line suggests the existence of a metal type as yet absent from the archaeological record. Pre-E.C.I and post-L.C.II occurrences have not been recorded as these periods are beyond the scope of the present study.

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1. Catling 1964:13, 76. 2. Stewart 1957:2; 1962:242. I wish to thank Dr. Moorey, Keeper of the West Asian Department for permission to make use of these analyses and to take new samples. The Kafkallia axe is published by Overbeck and Swiny 1972:21ff.

The metal samples were taken with a 12 v. hand-held drill, using a 1 mm. bit[1]. The writer is aware of the problems of inverse segregation in general[2], and in particular with reference to copper arsenic alloys[3]. He felt, however, that a request for multiple samples for each object would be impractical. In order to alleviate analytical bias, the patina was removed from areas to be sampled and whenever possible the drilling penetrated deep into the core of the object. The quantitative results obtained by this method are far more accurate than surface analysis by X-ray fluorescence. Objects from Phaneromeni and LMRR619/19 were analysed at the British Museum Research Laboratory by atomic absorption spectrometry[4]. The precision of the method is $\pm$ 1% for the major elements and $\pm$ 20% for the trace elements (i.e. below 0.2%). The remaining samples were submitted to D. Brown Gear Industries Limited, for quartz spectrograph analysis[5]. The bronzes in this group show a tin content of between 5.0% and 10%, and small amounts of nickel and manganese.

It is evident from Table 2 that there is little chronological or functional correlation between metal types and their composition. One might expect, for example, a higher percentage of alloys - tin bronze especially - in objects that belong to the later phases. None of the L.C.IA metal from Phaneromeni was tin bronze, although arsenic was intentionally added to 6 out of the 11 pieces sampled from Settlement A.

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1. I am extremely grateful to Drs. V. Karageorghis and K. Nicolaou for their enlightened attitude in connection with scientific sampling. I was able to sample all the objects for which permission was requested. 2. Coghlan 1976:33. 3. McKerrell and Tylecote 1972:216. 4. I am endebted to Mr. D.E.L. Haynes, Keeper of the Department of Greek and Roman Antiquities for permission to have the metal samples analysed by Dr. P.T. Craddock of the B.M. Research Laboratory. 5. I am grateful for the assistance of Mr. and Mrs. A. Kenneford of Ayios Detrianos, Paphos, for submitting the samples to D. Brown Gear industries.

In order to better understand the changes effected by the use of copper alloys and the possible impact of these changes on metal-working traditions, it will be useful to survey the basic technical data of early copper and bronze working. This is best presented in an annotated tabular form:

Material	Melting temperature °C.	Brinell or Vickers hardness as cast	Brinell or Vickers hardness after coldworking
Pure copper	1084° (1)	35 - 40 HB	135 HB (2)
Native copper		78 - 108 HB	
Copper + 1.5% As			92 - 112 HB
Copper + 5% Sn		68	176 - 186 HB
Copper + 5% As	1059°	±63	128 HB
Copper + 8% Sn	1020°		
Copper + 7.93% As			224 HB (3)
Copper + 10% Sn		88 HB	228 HB
Copper + 13% Sn	980°		
Soft iron		70 - 80 HB	
Mild steel		246 HB	

The importance of coldworking is obvious, since it can more than triple the hardness of the copper alloy, exceeding that of soft iron and almost attaining the equivalent of mild steel. These advantages are offset, to some extent, by a corresponding increase in brittleness.

An addition of equal amounts of arsenic and tin produces a metal almost as hard after coldworking, with a slight advantage for the latter. The main difference, however, between both alloys is that arsenical copper must be strengthened by coldworking - as cast it is softer than tin bronze - and this requirement might have led to its eventual disuse[4]. Since a number of objects analysed contained amounts of arsenic and tin, it is of note that the effects of these metals on the mechanical properties are approximately additive and that "cold-worked alloys of this type are a good deal stronger than pure or slightly impure coppers[5].

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1. For comparative purposes, the heat of an ordinary fire is ca.750° (Madden et al 1977:47). 2. Marechal 1963:33. 3. Op.cit. p.33. The remaining information contained in the table comes from the following sources: Madden et al: 1977:41; Tylecote 1976:8,9,11; Tylecote 1972. 4. Tylecote 1972:209. 5. Tylecote 1976:15.

The addition of small amounts of tin or arsenic to copper also lowers the melting point, act as mild deoxidants and increase the fluidity[1], which are all factors of considerable importance if complex shapes are to be cast in open or closed moulds. Considerations of this nature would have been of little importance, however, to the Cypriot metal-smiths for the period under discussion. With the exception of shaft-hole axes[1a], of the type sampled here (LM6294) all diagnostic pre L.C.III metal shapes could be cast in simple open moulds and then laboriously worked up to their ultimate shape.

Their uniformity in size - from 7.1 to 12.3 cm. - is probably the most striking feature of the corpus of southern Cypriot knives[2]. There are otherwise few points of comparison and certainly no common pattern. The most usual shape, represented by 4 examples, belongs to Astrom's type 1 : "Flat , generally long and narrow roughly rectangular tang with straight or rounded top". There are also a few knives of this type with shorter, or narrower tangs which fit into a more typologically advanced stage, transitional from tang to butt[3].

It is of interest to note that no comparison is possible between the extant knives from Phaneromeni and the L.C.IB blade from Episkopi Bamboula[4]. Its coalesced butt, angular shoulders and overall shape of blade are quite different.

If the knives are compared with other metal categories as a group, they show an unusually high incidence of alloys. Of the 11 pieces

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1. Tylecote 1972:109. Dr. P. Craddock (letter dated 4 April 1979) mentions unpublished research that shows an increase in fludity of Cu when up to 2% of Pb is added. Thereafter the effects remain constant. To date there is no single or satisfactory explanation for these relatively high percentages of Pb in Bronze Age metal. 1a. See De Jesus 1976 for an up to date and comprehensive survey of the evidence concerning these axes. 2. It should be remembered that only the butt of Ph. M60 remains. 3. See Catling's (1964:59-60) comments on this evolution. 4. Benson 1972:126, B1265, L.20 cm., W.3.3 cm. See Merrillees 1974:303 for the earliest occupation at Episkipi Bamboula.

sampled, 8 are tin bronzes or arsenical coppers, sometimes with additions of nickel or manganese which are probably incidental[1]. All 3 knives from Phaneromeni are arsenical copper hardened by coldworking. The lack of tin at the site, in contrast with its common occurrence in knives from Limassol and Pyrgos suggests that either the supply was interrupted in the L.C.IA or the smiths estimated that arsenic was a satisfactory substitute.

Rat-tang dagger/spearheads range from 18.5 cm. to 32 cm. in size, with an average length of 26 cm.

All but LM RR211/7 have hooked tangs, and this straight pointed terminal stands alone in the category of rat-tanged weapons.

The inhabitants of Phaneromeni preferred straight shouldered types, but elsewhere rounded notched shoulders predominate. Only two pieces have been analysed; M25 from Phaneromeni is pure copper whereas LM RR611/7 from Limassol is a tin bronze with traces of manganese. The implications of these results will be discussed in connection with the swords.

Both swords are alike in shape and composition: the long tapering blades with rounded shoulders are forged from billets of almost pure copper[2]. Both have very small hooked terminals which could have a bearing on the type of handle attached. The large bent back terminals are often found in conjunction with shorter tangs of a type more appropriate for spears.

If tin bronze might be used for mundane objects like pins, then it was surely available, if desired, for the manufacture of swords the largest and presumably most prestigious of weapons. So far as we can tell from the known analyses, the larger rat-tang weapons are all of pure copper without addition of tin or arsenic[3], constituents which

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1. The nickel probably came from the ore, but the manganese was probably introduced by the (umber) fluxes. 2. Swords are defined as weapons of over 39cm. in length. 3. Stewart 1950: 350; Dikaios 1940:174; Buchholz 1967, fig. 10, 16.

were obviously considered unnecessary and superfluous.

The situation changes with regard to the smaller dagger/spearheads, which are often made of arsenical copper[1] though rarely of tin bronze[2]. The alloys would result in great hardness after coldworking, but they also require - especially in the case of arsenical copper annealing to a higher temperature[3]. The configuration of these weapons with massive mid-ribs suggests they were effective for thrusting, therefore a well tempered cutting edge was of only relative importance. For these reasons it is possible that the hardening properties of arsenic and tin were judged unnecessary for the manufacture of the largest rat-tanged weapons, but sometimes useful for the smaller dagger/spearheads.

The razors call for no comment as to shape and size. The only piece sampled was pure copper, a surprising choice if these objects were indeed used for shaving or scraping, since extreme hardness and a keen edge would have been desirable. The razor from Vasilia (1957:26) and a scraper from Vounous[4] have 1.96% arsenic plus 0.1% tin and 2% arsenic respectively, which, after coldworking would result in a harness of over 120 HB.

Although pins are the most common metal form in the south[5], they are far from plentiful, since only 25 examples were catalogued, and two of them were fragmentary.

The present corpus of pins emphasizes the apparent lack of preference for a specific type. If the Phaneromeni material is included concical heads predominate - 6 examples - followed by plain heads - 4 examples - two of which have minor peculiarities. With the exception

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1. Stewart 1950:350, Tomb 148:7, 118:47, 107:10. These weapons range in size from 24.8 cm. to 31.7 cm; Dikaios 1940 Tomb 33:66 (size unspecified) 2. Cf. LM RR211/7; Schaeffer 1936:40 (size unspecified). 3. Charles 1967:24. The addition of arsenic would, according to the same author, enable more coldworking without embrittlement. 4.Stewart 1950:350. 5. Pins are also by far the most common single type listed in Stewart's Corpus. He records 172 pins of all types, including toggle pins.

of Ph. B4, all the pins belong to M.C. horizons, with emphasis on the latter part of the period.

Toggle pins are very rare, and this class is only represented by one example (LM RR211/3).

Several types of head recorded in the south are apparently unrecognised elsewhere. That of biconical shape from Phaneromeni (M2) is unique, and the conical type (B4) has only previously been noted on toggle pins.

They are an interesting group in view of their chemical composition, as half of the 12 pieces sampled were alloys: two tin bronzes and 4 arsenical coppers. Since hardness is an unlikely requirement for a pin, it is difficult to explain the high incidence of alloys unless their superior casting properties were a distinct advantage. The evidence, however, fails to detect a correlation between the more complex head shapes and the use of alloys, which were chosen for 4 pins with plain terminals. It would almost seem that the choice of metal was random - not to say uncontrolled. If the high frequency of tin bronze and arsenical copper knives had not been detected, the remaining evidence would suggest that the metal-smiths showed little method and even less discrimination in their choice of alloys.

Little can be said about needles, except that in the south, as elsewhere according to Stewart's Corpus, they are the most common metal type after pins. There is, by definition, little scope for variation within the range of these small utilitarian objects, whose shape is timeless and typeless. The body is usually round in section, but flat examples do occur.

Needles at Phaneromeni Settlement A are long and thin, averaging 10 cm. with a diameter of 0.13 cm. From Tomb 23d at the same site came the largest needle (M28) recorded in the south, originally measuring around 17 cm. by 0.3 cm. in diameter. So far as can be

determined (sometimes it is difficult to tell whether the pointed end of a needle is original or eroded) the average length of needles in the Limassol Museum is 7 cm. with a diameter of 0.23 cm. M28 was the only needle of sufficient dimensions to warrent analysis. It was made of copper with 3% lead, which does nothing to improve the alloy since it remains insoluble[1]. The lead was presumably contained in the ore.

Awls are nearly as difficult to classify as needles. Stewart mentions in his corpus that they are "comparatively rare in Cyprus", a situation borne out by the present work which only notes 4 occurrences in the south. They form a homogenous group with an average length of 6.5 cm. and cross section of 0.4 cm.

M30 from Phaneromeni was copper 2 % arsenic-tin alloy, but the other pieces from Limassol and Pyrgos were pure copper. Only one other Cypriot awl has been analysed and it was basically pure copper[2]. If such tools were intended for working materials such as wood and bone, it is surprising that the metal-smiths did not consistently choose the harder arsenical copper or tin bronze alloy.

Flat axes are extremely rare, and shaft-hole axes and adzes are quite unknown in the south. The only axe recorded is of diminutive proportions and would have been of little use for chopping, but might have served as a scraper or chisel[3]. As above noted, the metal was extremely hard, which is to be expected with well forged tin bronze. Even if the smith repeatedly annealed the axe in the course of manufacture, there would be a steady increase in hardness. Could the apparent look of axes and adzes have a bearing on the woodworking(?) crafts of the local inhabitants? Flat axes are only common in the

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1. See n.1 p.183. 2. Buchholz 1967:3, 10, 16; Stewart 1950:371, Tomb 105:32. 3. Catling 1964:63.

Lapithos tomb groups excavated by the Swedes[1], elsewhere they are not the typical funerary offering. Their absence in the South might be attributed to the general paucity of metal combined with the necessity to reserve such mundane objects for the use of the living. If axes are to be found it will be in the settlements and not the tombs.

Tweezers belong to the pinched top and simple bow shaped types. They have an average length of 8 cm. and might be made of pure copper or tin bronze. Of the 4 analyses of tweezers listed by Buchholz[2] two are tin bronze and the others are pure copper. The existence of alloys in this category rather disproves Schaeffer's theory[3] that tweezers are best made of pure copper.

Few comments relevant to a study of southern Cypriot metallurgy can be made on the remaining group of miscellaneous objects. Several such pieces were analysed, (see Tab. 2) and with the exception of M46, the so-called "split-pin", they were all forged from relatively pure copper.

The analysis of the M.C. shaft-hole axe excavated at Dhali Kafkallia in 1970[4] has been included here for comparative purposes. It is a high quality tin bronze, as correctly predicted by de Jesus[5]. We shall not enter into a detailed discussion on the origins and significance of such axes, as the evidence has recently been summarised by de Jesus[6], and the analysis of the Dhali Kafkallia piece affords little new information, since it too is of tin bronze.

There can be little doubt that this sophisticated weapon type was cast on Cyprus as it has not exact prototype outside the island[7]. With the evidence presently available it is impossible to determine

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1. Of the 53 axes recorded by Stewart in his corpus, 24 came from the Swedish Excavations at Lapithos. 2. Buchholz 1957, tab.3, 10. 3. Schaeffer 1936:40. 4. Overbeck and Swiny 1972:21 ff., fig.5,6, ill.:3. 5. de Jesus 1976:222. 6. Op.cit. 7. Op.cit. p.226.

whether the smith, or smiths, were autochthonous[1] or foreign,[2] which, in any event, is an academic question since the requisite technology certainly originated beyond Cyprus. In the writer's opinion the most perplexing question surrounding the M.C. shaft-hole axes is that they had no visible impact on contemporary and later metallurgy[3]. Even if they were the product of a specific workshop or a select few who closely guarded the manufacturing techniques, it remains to be explained why no enterprising Cypriot metalsmiths attempted to imitate shaft-hole axes through trial and error. A shortage of tin, the belief that the production of such weapons was uneconomical, or extreme conservatism are but 3 possible explanations for this apparent lack of initiative.

A last point of interest should be mentioned in connection with the new analyses presented in Table 2. De Jesus noted in 1976[4] that the high nickel content of many Cretan bronzes was incompatible with Cypriot ores, and he suggested that the Minoan merchants obtained their copper from another source. The analyses of southern Cypriot objects disprove this theory, since the nickel contents recorded are comparable with those of Cretan objects. The plausibility, therefore, of an Aegean market relying on a Cypriot copper supply remains unaffected.

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1. Op. cit. 225. 2. Overbeck and Swiny 1972:22. 3. A view previously stated by Catling 1964:66. 4. De Jesus 1976:227.

IV THE TERRACOTTAS FROM EPISKOPI PHANEROMENI

The small assemblage of terracotta objects from Phaneromeni is restricted, with the exception of beads and figurines, to simple functional types. The most common of these are spindle-whorls with incised decoration, which form rather an uninspiring group in comparison with other parts of the island. Next come the so-called "jar stoppers", crudely fashioned from discarded sherds, followed by a small number of conical loom-weights and a few beads. Of interest, because of their rarity in southern Cyprus, the two small fragments of plank-shaped figurines have otherwise little to offer by way of stylistic contribution to the plastic arts.

The generally negative impression conveyed by the material is a result of a lack of creativity in the non-ceramic plastic arts. This should probably be interpreted as typical of the small unpretentious argicultural community that occupied Settlement A.

The criteria adopted by Stewart[1] for the classification of Early and Middle Cypriot spindle-whorls were dependant on shape alone, with no allowances being made for decoration or fabric. In his discussion of the M.C. material, Astrom[2] perfected the system and based his typology primarily on shape and secondly on ware. Neither archaeologist distinguished a relationship between shape and decoration, which, as we shall see, is a characteristic missing from all Cypriot spindle-whorls.

In attempting to classify the material from Settlement A according to the known typologies, it was soon noticed that important differences existed between the whorls from Phaneromeni and those from other parts of the island.

In contrast with Stewart's[3] comment "In general the size of whorls

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1. Stewart 1962:349. 2. Astrom 1972a:155-7. 3. Stewart 1962:233.

tends to increase with the advance of time, and large examples are usually of M.C. date", it is impossible to detect the existence of a norm at Settlement A[1]. A progressive reduction in size from TC 156, the largest whorl, to TC 38 the smallest bead, raises the question of where to set the dividing line between both classes. The same problem is mentioned in connection with the material from Myrtou Pigadhes[2] and Enkomi Ayios Iakovos[3]. The most diminutive unequivocal spindle-whorl, TC 154 (Fig.56:3) H. 2.4 cm. - is decorated asymmetrically with a flattened ring with radiating lines at the base, and therefore belongs to Type 1a, discussed below. Unfortunately it comes from an unstratified context, but is diagnostic enough to be safely used here as a standard. All biconical or spherical terracottas of lesser dimensions will, for the sake of convenience, be classified as beads, for which purpose they are best suited. Indeed, anything smaller than TC154 would be so light as to be quite unsatisfactory for spinning. This opinion was voiced by several local spinners in Episkopi Village[4]. Modern Cypriot whorls are of wood (see Fig.56:2) and very light in comparison with those from Phaneromeni. Today, the yarn spun from sheeps wool, is about 1 mm. thick, and an overall weight of 40 gr. for both spindle and whorl is quite sufficient for the purpose. The weight increases naturally as the finished product is wound round the spindle below the whorl. The spindle is usually elliptical in longitudinal section, in other words both ends are slightly pointed.

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1. See table 1 and fig. 54:1, 2. 2. Taylor 1957:78. "It is often difficult to distinguish between large beads and small spindle-whorls". 3. Dikaios 1971:230. Dikaios excavated 15 biconical beads from L.C.I to L.C. IIIA, and these range in height from 1.8 to 3 cm. However, one example Level I, 2258 with a height of 2.8 cm. is mentioned as "questionable" , and we may therefore conclude that anything of 2.8 cm. or more from Enkomi Ayios Iakovos should be seen as a spindle-whorl. 4. Verbal communication.

The heavier whorls from the Settlement were perhaps required for producing a thicker and heavier yarn, especially from goats hair.

Caution should, however, be exercised for there is no reason why beads could not be decorated as whorls, or vice versa, or why miniature whorls should not be manufactured as toys, in which case the problem becomes inextricable![1]

Table 3 is a representative sample of spindles currently in use in Episkopi Village.

The Settlement A spindle-whorls are a homogenous group and of the 60 identifiable stratified examples 58 are either spherical or roughly biconical. The remainder are conical (TC48 and 116) and belong to the type preferred in the earlier M.C. tombs, which is interpreted as being out of context here.

Table 5 demonstrates that, with two exceptions, the central perforation is always larger at one end. In most instances the difference is only a few tenth's of a millimetre, but remains, nevertheless, sufficient to prevent the whorl from slipping down the spindle. In this context it will be remembered that whorls are always placed at, or near, the top of the spindle (see fig.56:2)[2] a practice going back to E.C. times at least, as shown by the terracotta models of two spindles complete with conical whorls[3]. Both have the conical side of the whorls facing upwards, which in Dikaios' model is mounted at the top of the spindle, whereas in the other it is about $\frac{1}{3}$ of the way down. The models must differ from reality in one respect, since they show the spindles incorrectly tapered, a feature which would have caused the whorls to work loose and slip down the shaft[4]. By analogy with contemporary practice,

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1. Note a bead-sized terracotta with asymmetrical decoration from Peralijithias. See Table 5, Anoyira Pera. No. 6 and fig. 54 6:6. 2. Weir 1970, Pl.2, 3. 4). 3. Dikaios 1938, Pl. 56:6; Stewart 1950, Pl. C:d. 4. See also: Pieridou 1967:25-29, for interesting comments on Cypriot spinning and weaving.

and with the information supplied by the E.C. models, we can postulate that the end with the hole of greater diameter faced downwards when in use, a fact of some importance, which often has a bearing on the arrangement of the decoration. The area surrounding the lower perforation is invariably damaged and worn, though it is not clear how, or why this occurred.

The 49 spherical or roughly spherical whorls are certainly the most popular type, and even the remaining 9 are not truly biconical, for each cone has slightly concave sides. In these circumstances a typology based on shape alone is a simple matter, which would lead to the incorrect conclusion that the L.C.IA inhabitants of Settlement A only manufactured spherical or slightly biconical spindle whorls.

The task of attributing the whorls to specific wares as defined by fabric, colour and surface treatment, is not easy since all are made of fine, grit-tempered buff to orange clay, usually with a grey core. Three were perhaps intentionally fired gray-black in a reducing atmosphere (TC16, 77, 90. Cf. fig. 54:2, 3). So far as can be ascertained the slip of each whorl, from brown to red-black mottled, always shows a dull lustre, if not a burnish.

The fabric and surface colour never resembles R.P.III Mottled or R.P. IV, which leaves the choice between Episkopi and Blue Core Ware. The slip and decoration i.e. hastily executed incision of a few whorls[1] do have Blue Core affinities, but the diagnostic blue-grey colour of the actual core is lacking. By a process of elimination it appears that most spindle-whorls were manufactured from a clay closely resembling, if not identical to, that chosen for Episkopi Ware, a point emphasised by a study of the decorative motifs and the manner in which they were executed.

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1. TC 59, 75, and possibly 153. Cf. fig 54:2; fig. 57:2.

Only five whorls out of 60 were undecorated, and, of these, three have a pitted and worn surface from which any initial incision might have been obliterated. None were painted. The designs, consisting of incisions or punctures, up to 2.8 m. deep and always filled with white lime, framed by parallel lines, are meticulously executed, with a common use of reserve space. Such characteristics are found on decorated Episkopi Ware vessels, and the unusual motifs of TC90 could hardly have been inspired by anything else.

To sum up, if the spindle-whorls from Settlement A are to be attributed to any specific ceramic type, Episkopi Ware should be considered as the most likely candidate.

On the basis of the preceding discussion the spindle-whorls from the settlement may be classified in the following order.

Type 1a: Spherical or roughly spherical with asymmetrical decoration: Sample: 21. (7 too fragmentary to be included in Table 4). TC 34, 42, 43, 45, 52, 56, 58, 84, 86, 93, 95, 104, 118, 123, 124, 152, 156, 159, 162, 180, 197. (Cf. fig. 54:1; 57:1).

Description: The top half, where preserved, is divided into 3 or 4 reserve panels by a single (9) or double (3) row of framed incisions or punctures[1]; by 2 rows of framed incisions or punctures (2); by a zig-zag of framed incisions (1); by alternating hatched reserved triangles (1); or finally by 2 rows of unframed incisions or punctures (1). The lower half, separated by one or two encircling lines near the maximum diameter, is always the most elaborately decorated. It consists either of a chequered motif of punctured rectangles (18) or of incised triangles (2). A diagnostic feature of this class is an incised band outlining the base, usually flattened and decorated with groups of incisions radiating outwards.

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1. "Incisions" are here defined as short slashes or hatches, whereas "punctures" resemble pin-pricks.

Type 1b: Spherical or roughly spherical with symmetrical decoration: Sample:23. (4 too fragmentary to be included in Table 4). TC 35, 44, 59, 75, 77, 79, 85, 90, 91, 92, 94, 97, 102, 115, 117, 120, 122, 137, 153, 155, 157, 160, 181. (Cf. fig. 54:2; 57:2; 58:1).

Description: This class is characterised by the duplication, with minor alterations[1], of the decoration on both hemispheres and, with the exception of TC 117 and 137, by the lack of an incised band at the base.

Motifs dividing the panels are more varied, and consist of framed incisions or punctures (16); zig-zags, or triple wavy or straight lines (4) sometimes alternating on the same frieze. An unusual whorl (TC90), is decorated with incised and punctured "hooks", typical of Episkopi Ware designs. Both hemispheres are separated by one or two incised lines, with the exception of TC115 and 181, which have none.

Type 1c: Undecorated, spherical or roughly spherical: Sample: 5. (2 too fragmentary to be included in Table 4). TC40, 100, 105, 107, 140. (Cf. fig. 54:5, 58:4).

Description: As previously mentioned only two whorls were deliberately left plain, the remainder might once have been incised.

Type 2a: Biconical with asymmetrical decoration: Sample: 3. (1 too fragmentary to be included in Table 4). TC16, 128, 148. (Cf. fig. 54:3; 58:2).

Description: The top half is divided into three reserve panels by a single (2) or double row of framed punctures. Below, the decoration consists of the usual chequerboard pattern of alternating punctured areas, with the incised band outlining the base.

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1. TC155 is an exception, with somewhat more elaborate decoration on the bottom half. It consists of a vertical band of double lozenges, a zig-zag, 2 incised lozenges joined end to end, and a band of framed incisions. The top half has 3 bands of framed incisions and one hatched band. Cf. fig. 57:2.

Type 2b: Biconical with symmetrical decoration: Sample: 6. TC57, 69, 83, 121, 125, 161. (Cf. fig. 54:4; 58:3).
Description: The examples of this class are either decorated with 3 bands of framed incisions (5) or punctures (1). None have the incised band at the base.

Type 3: Conical. Sample: 2. TC48, 116. (Not included in Table 4. Cf. fig. 58:5).
Description: TC48 and what remains of TC116 are morphologically identical to the conical or roughly conical whorls from Areas C and J, the M.C. necropolis. Of the 21 recovered from the Area C tombs, 18 were of this type[1]. They form a homogenous group with little variation in size, fabric, or decoration, which clearly went out of fashion with the M.C. if funerary material can be taken as representative of that in use in every-day life. Beyond a doubt, our conical examples from the settlement should be considered as heirlooms or as stray surface finds collected in Area G. Another, though less likely explanation, is that they were acquired as the result of foraging in ancestral tombs. It is to be regretted that no stratified whorls were excavated from G4 in order to test the validity of the chronological implications suggested here.

Twelve additional spindle whorls were excavated in contaminated levels of the settlement, and one stratified example was too fragmentary to be classified (TC131), which brings the total to 72. Six belong to Type 1[2], and, of the remainder, one is small and conical, another is elongated conical with a rounded base, three are biconical with or without decoration, and the last is spherical with symmetrical decoration of Type 1b (Cf. fig. 56:3).

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1. To this group, 4 more should be added from the tombs excavated by Weinberg: Cf. Duryea 1964. For a representative sample of whorls from the necropolis see fig. 53:2. 2. Four examples for Type 1a, and 1 for 1b with a chequered pattern of incised rectangles on both hemispheres, resembling that found on a whorl from Anoyira Peralijithias, and Limassol T 532:4; T 533:7; T 593:4.

Spherical spindle-whorls of stone are known in Cyprus from the earliest Neolithic[1], and continues through the Chalcolithic into the Bronze Age.

Although clay is first used for whorls in the form of perforated circular sherds at Erimi Pamboula[2]; specifically manufactured terra-cotta spindle-whorls are first attested in the initial stage of the E.C. at Philia-Vasiliko[2a]. Henceforth, this material is greatly preferred to stone, though never exclusively. The Philia-Vasiliko examples are biconical or ring shaped with incised decoration, and are smallish (average H. 2.8 cm. and D. 3.4 cm. for the biconical examples) in comparison to the later material.

To quote Stewart[3] "In E.C.I both conical and biconical shapes are found; thereafter conical forms are more popular than biconical. Disc and macehead whorls do not occur before M.C.I". The emphasis on the conical type of whorl already noted in the E.C. is of interest, and suggests a trend that was continued and amplified during the M.C. in southern Cyprus, though apparently not elsewhere. Astrom[4] shows from the material gathered in his corpus that spherical and biconical types are far more popular at Lapithos, Kalopsida and in the Karpas, during the M.C. period.

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1. Dikaios 1953:284-5, Fig.40:1357, 1359? mace-head. Several objects published as spindle-whorls by Dikaios are, because of size, best interpreted as mace-heads. Cf. Dikaios 1962, fig.22:148, 911, respectively 5 and 7 cm. in diameter: from Khirokitia; Op.cit. Fig.61:26,27, respectively 9.5 and 7 cm. in diameter: from Erimi Pamboula in contrast with Khirokitia, a different shape was preferred at Sotira Teppes. Cf. Dikaios 1961:202, Pl.91. Five perforated discs, from 5 to 7.5 cm. in diameter, were interpreted as probable spindle-whorls. In connection with this site it should be noted that a terracotta whorl with incised decoration came from outside House 41 in Area 1: Op.cit. p.170, Pls.90;102 (No.689). Area 1 belongs to Phase III, in other words the end of Neolithic II. No mention is made of the whorl being out of context, though nothing of this type has been found in pre-Bronze Age Cyprus. Another discrepancy is that the find spot is stated as Area 1, I 5, though no I 5 exists in this Area. Bearing this in mind, and the fact that 689 came from outside a dwelling where lack of secure stratification is more likely, it is preferable to disregard this unique find as the earliest intentionally manufactured clay spindle-whorl on the island.
2. Dikaios 1936:50, fig.14:A,B. 2a. Dikaios 1962, fig.84:13-17.
3. Stewart 1962:233. 4. Astrom 1972a:155-7.

In south and southwest Cyprus the situation appears quite different. In the first instance there is less variety in shape, for the majority of whorls are conical, or nearly conical, the remainder being spherical, biconical or approximately biconical (see Fig.2). Painted decoration is apparently undocumented, but most whorls are covered with incised lime-filled motifs.

Of the shapes that concern us in this study, Astrom[1] mentions a total of 77 whorls: 24 spherical, 39 biconical and 14 conical. According to his dating each type is found in the following proportions.

	Conical	Spherical	Biconical	Total
MCI	9	1	7	17
MCI-II			2	2
MCII	1		5	6
MCII-III	3	7	4	14
MCIII	1	16	21	38
Total	14	24	39	77

Although the table does not reflect the picture seen at Phaneromeni Settlement A, it does agree in broad terms with our findings. Conical whorls are shown as more popular at the beginning of M.C. but only represented by one example at the end of the period, when both other types are more common. The spherical shape is represented by a single example in M.C.I, but very popular in M.C.II-III and M.C. III. A similar increase in frequency is seen with biconical types.

The small amount of new material published since the appearance of Astrom's thesis in 1957 will be found in the following table, which for the sake of completeness also includes the E.C.III period.

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1. Astrom Op. cit.

	Conical	Spherical	Biconical
ECIIIB-MCI	3 (3)*	1(1)	
MCII			1(1)
MCII-III		2(8) 6(2)	2(8)
MCIII		1(5)	1(5) 1(6)
MCI-III		3(7) 1(4)	1(4)
Total	3	14	6

To the above must be added the unpublished spindle-whorls in the Limassol Museum[9]. The relative, let alone absolute, chronology of the pertinent tomb groups is at present extremely problematic and awaits a detailed study, beyond the scope of the present work. In the interim, on the basis of my knowledge of the southern Cypriot tombs, one of which has been dated[10], it is possible to place the material broadly within the M.C. in terms of early-middle and middle-late.

1. Karageorghis 1974:12, Pl. CXVI. Date: end E.C.IIIB. Called biconical, but according to our criteria it should be considered as roughly spherical.
2. Karageorghis 1958:143-45, Fig.27. Dated to, end of E.C.III, but in view of the Blue Core Ware cannot be earlier than M.C. in date.
3. Op. cit. p.119 Nos. 8,9; p.127 No.24.
4. Bucholz and Karageorghis 1973:169 and 498, Nos.1841 and 1842. Simply dated to M.C. 1841 looks quite similar to our Type 1a. 1842 is truely biconical, but most closely resembles Astrom's (1972) Type IV IA, with bulging sides and convex base, however it does just fit into our Type 2b.
5. Merrillees 1974 :52,75, Fig.31:25-6. Dated to end of M.C.III.
6. Astrom 1966 Fig.31.
7. Astrom 1960 Fig. 2:4; Fig. 3:4; p. 128; Fig.4:9a,9b; Fig.5:9a,9b. Described as biconical, but from the drawings they appear to be roughly spherical.
8. Astrom and Wright 1963:256-7; Pl. V:11-16; Fig.9:49c,h,i,j. Tomb 6 at Dhenia has 20 whorls complete and fragmentary, and these have characteristics unknown in the south: i.e. biconical with concave base, or spherical with flattened ends (barrel shaped). Only 8 could be included in the table, the others being too fragmentary.
9. Many of the tombs have been mentioned by Karageorghis in the BCH reports Chroniques des fouilles et découvertes archéologiques á Chypre.
10. Swiny 1976:50-1.

* Numbers in () are references

All the tombs under discussion belong to the R.P.III Mottled Ware horizon, which, in broad terms, covers the end of E.C. and all of M.C. When the funerary offerings contain Blue Core vessels, a later date within the M.C. is indicated. The problem of the internal dating of tomb groups is aggravated by the frequent existence of multiple i.e. consecutive burials, and by the nature of their chance discovery, the result of earth moving or building operations: intentionally[1] or not, the contents are often disturbed. In my opinion the disadvantages of including the comparative material from loosely dated tombs in this study, are outweighed by the information gained from painting a complete picture of the southern Cypriot traditions governing the manufacture of spindle-whorls. The result of chance discovery, these isolated burials are more likely to be securely dated by large scale excavations e.g. Phaneromeni than vice versa.

The following table is a synopsis of the unpublished whorls from the Limassol Museum, compiled from 20 tomb groups and 2 surface collections from looted cemeteries, listed in Tab. 5. The frequency with which spindle-whorls occurred may be gauged by the fact that the Museum's store rooms hold material from 40 R.P.III Mottled Ware tombs, exactly half of which contained spindle-whorls.

	Conical	Spherical	Biconical	Other	Total
Early MC	2				2
Early/middle MC	9	1			10
Middle/late MC	26	12	9	8	55
Late MC		2	1		3
Early/late MC	4	4	2	1	11
Total	41	19	12	9	81

1. At present, due to the energy of the Department of Antiquities and the more commercial nature of building activities, etc., the contents are very rarely tampered with.

In her study of L.C. spindle-whorls L. Astrom[1] makes the following comment: ...." it can be stated that shapes current in L.C.I present no innovations as compared with those dating from the preceding period". This is true, even when extended to cover the whole L.C. as shown by the table below which includes all the published (up to 1977) L.C. whorls known to the writer. A marked difference is seen, however, when comparing the shapes favoured in M.C. and L.C. The variety of the earlier period is abandoned for the dry, rather unimaginative shapes and decoration that followed, with a clear preference for the biconical type. Spherical whorls are now uncommon, and usually belong to an early phase of the L.C.[2] and the diagnostic M.C. conical type has been completely abandoned.

	Conical	Spherical	Biconical
Various sites (i.e. Astrom 1972c)	3	7	31
Bamboula		3	3
Enkomi	2	5	15[3]
Toumba tou Skourou[4]			2+1?
Pendaya Mandres		3	10
Dhali Kafkallia		1	1
Total	5	19	62[5]

This corpus of L.C.I to IIIC spindle-whorls is mainly based on Astrom's Corpus[6] from which the following has been omitted: a. the material from Apliki, as the exact number of items is not stated in the publication[7]. Furthermore, according to the publication these are not typically "biconical", but rather "flattened biconical" since they average 7 cm. in diameter and 3 cm. in thickness. b. the material

1. Astrom 1972c:617. 2. Enkomi Ayios Iakovos Level I has 2, and Pendaya Mandres has 3 spherical whorls. 3. Two of these from Period IIIA and respectively measuring 2.8 and 3 cm., were classified by Dikaios as beads. 4. Note that Vermeule publishes (1974, Fig.54) a series of biconical spindle-whorls from 1 to 4 cm. high. At least 4 (Nos.1-3,5) and probably 5 (No.9) should all be classified as beads according to our criteria. No.11 is damaged, thus of questionable attribution, and No.10 has been omitted as belonging to a different type. 5. These objects only slightly resemble the conical or roughly conical whorls from Phaneromeni.
6. Astrom 1972c:516-7. 7. Du Plat Taylor 1952:162.

from Episkopi Bamboula, now published separately by Benson[1].

L. Astrom did not include the spindle-whorls from Pendaya Mandres[2] in the corpus of L.C. whorls, since they could not accurately be attributed to either M.C.III or L.C.IA[3].

The bulk of the remainder come from Enkomi Ayios Iakovos[4], with a few from Toumba tou Skourou[5], and two from Dhali Kafkallia[6]. Though described as whorl, the object from Livadhia Kokotes[7] only measures 1.5 cm. and is better interpreted as a bead.

What useful information, then, can be gleaned from this tabulation of data? First and foremost, the tables clearly demonstrate that, seen as a group, the spindle-whorls from both the M.C. cemetery and the L.C.IA settlement at Phaneromeni are atypical of Bronze Age whorls from elsewhere in Cyprus. At Phaneromeni, the homogeneity of shape, initially conical, then spherical or sub-spherical is seen in marked contrast with the variety of shapes and preference for the biconical type at other sites. Secondly, the use of asymmetrical incised decoration and the choice of framed hatches and punctures is rare or unknown outside the southern part of the island.

Last but not least, the tables indicate, with one exception, that spindle-whorls do not appear to be sensitive chronological indicators, a fact previously mentioned by Astrom (1972c:617). As the evidence stands the one exception is Phaneromeni, where there is an abrupt switch from conical to spherical shapes with the advent of the L.C. How representative Phaneromeni is in this respect remains to be demonstrated. Spherical and biconical whorls of Types 1 and 2 have been found at southern Cypriot sites and tombs firmly dated to the M.C.,

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1. Benson 1972:138. 2. Karageorghis 1965a, figs.16-7. 3. Letter from Prof. P. Astrom dated January 1978. 4. Dikaios 1971. 5. Vermeule 1974. 6. Overbeck and Swiny 1972:15, Fig. 29:61 and 63. 7. Astrom 1974:56, No.30 and Fig. 2:30.

however, some of the associated material i.e. evolved Blue Core Ware from these cemeteries appears to be later than that from necropolis C. Conical whorls are overwhelmingly popular in the early/middle phase of M.C., and remain the most common type until L.C.I.

The change of shape, at Phaneromeni in any event, is of definite chronological significance, but comparative L.C.I material from stratified contexts which might serve to test this hypothesis is sadly lacking. No spindle-whorls have come from the nearby M.C. to L.C. settlement and cemetery of Erimi Kafkalla, and the earliest levels at Episkopi Bamboula dated to L.C.IA2 or L.C.IB[1] were without terracottas(at least none have been published) though two later whorls[2] compare favourably to our Type 1. The Type 1A whorl recovered by the K.S.U. survey at Erimi Kafkalla is a surface find, therefore without chronological value.

Level 1 at Enkomi Ayios Iakovos on the far side of the island had 3 biconical and 2 spherical spindle-whorls, but their incised decoration differs from that at Phaneromeni, the same comment being valid with respect to the L.C.I whorls from Myrtou Stephania[3].

A number of sites do, however, show close parallels with Settlement A: Limassol Tomb 1[4] (LM-RR 211), Tomb 48 (LM-RR 235), Tomb 70 (LM-RR 341), Tomb 114 (LM-RR 532), Tomb 115 (LM-RR 533), Pendaya Mandres Tomb 2[5], Evdhimou Beyouk Tarla, Erimi Kafkalla, and finally Anoyira Peralijithias (Cf. fig. 54 6-7).

Limassol Tomb 1 has 4 whorls (Nos. 4,5,15,21) identical in every respect to Type 1a at Phaneromeni. The 3 or 4 rows of incisions on the top half contrast with the alternating incised rectangles or horizontal bands of framed incisions below. Figure 27 shows that Nos. 15

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1. Astrom 1972c:675; Merrillees 1974b:303. 2. Benson 1972:138, L.C.IIB. 3. Hennessey 1964:32-3, Pl. LI:17-19 and 21. 4.Karageorghis 1958:142ff., Fig. 27:4, 15, 21. No drawing of 5 is published, but it was checked in Limassol Museum and does belong to Type 1a. 5. Karageorghis 1965a:57 ff., Fig. 17:2, 16.

and 21 have the incised line outlining the base (both are published upside down) with additional incisions. The date of the tomb, is thought to be late M.C.II or early M.C.III.

Four whorls were recovered from Tomb 2 at Pendaya Mandres[1]. Number 16 with its asymmetrical decoration of framed bands of incisions above and alternating incised rectangles with an incised flattened base below, clearly belongs to our Type 1a. The other whorl, No.2 is decorated on each hemisphere with 4 bands of framed incisions, and as such belongs to Type 1b. The red-brown fabric with a brown, slightly lustrous slip and the shallow incisions are also reminiscent of the Settlement[2].

Karageorghis[3] dated the Pendaya tombs to the transitional M.C.III, L.C.IA period. More recently Merrellees[4] has argued persuasively in favour of lowering the date to the initial phase of L.C.IA.

The 11 spindle-whorls from Erimi Kafkalla and Anoyira Peralijithias (fig. 54:6,7) can be classified in the following manner: 4 of Type 1a, 1 of Type 1b, 2 of Type 2a, 4 of Type 3 and the last, with no exact duplicate at Phaneromeni, belongs to Type 1. None were stratified and therefore offer little internal evidence for dating purposes. The site does have a time range from R.P.III Mottled to developed R.P.IV ware, and there is some evidence to suggest that the Type 1 and 2 whorls came from tombs [5] mainly containing the latter, which would date them to a late phase of the M.C.

A similar argument can be used in connection with the single whorl recovered from the spoil heap of Tomb 1 at Anoyira Beyouk Tarla. The tomb contained R.P.III Mottled and good quality (i.e. evolved) Blue Core Ware, and the whorl itself is the best example of a Blue Core whorl so far recovered. If the chamber only contained one burial it should be dated to an advanced stage of the M.C.

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1. Op.cit. Fig.17:1,2,3,16. 2. The whorls from Pendaya Mandres Tomb 2 were studied in the Nicosia Museum. 3. Karageorghis 1965a:55. 4. Merrellees 1971:60. 5. Personal information from the person who discovered the tombs.

Of the 4 remaining tombs, 3 contain evolved Blue Core Ware and the last, LM-RR 341, is exactly contemporary with Settlement A. As we shall see it is the only known burial to contain R.P.IV and incised Episkopi Ware.

In conclusion, we find that the comparative material for the Settlement A whorls of Types 1a and b and 2a and b belongs at the very earliest to late M.C.II, and at the latest to L.C.IA. In the light of the results from previous studies of Bronze Age spindle-whorls[1] the chronological implications were unexpected, and are seen here as a welcome contribution to the dating of Settlement A.

1. Stewart 1962, Astrom 1972a and c.

A mere 5 objects recorded as beads were recovered from Settlement A; of these four are globular (TC 89, 158, 170, 175)[1], and one is biconical (TC38). All are made of fine, grit-tempered, buff to brick-red fabric, and bear traces of a thin, slightly lustrous grey-brown mottled slip. (Cf. fig. 54:8; 58:5).

In the following table the beads have been classified in accordance with the criteria previously adopted for spindle-whorls.

TC No.	Height cm.	Diameter cm.	Diam. of hole Top mm.	Bottom mm.	Weight gr.	Provenance
98	2.4	2.5	7.3	7.5	12	Rm. 18
175	2.3	2.5	5.7	6.2	10	Rm. 7
170	2.3	2.4	5.2	6.	8	Rm. 7
158	2.2	2.4	5.2	6	9	Rm. 7
38	2.2	2.1	6.7	7.2	7	Area 23

Each bead is decorated with white lime-filled incisions divided into two registers by an encircling line at the point of maximum diameter. The motifs on the spherical beads, identical to those of Type 1b spindle-whorls consist, with minor variations, of 4 to 6 diagonal bands of framed hatches meeting at the central perforation. Sometimes an additional zig-zag (TC170, 175) or 2 parallel slashes (TC175) have been added as fillers between the bands. The method of decoration i.e. depth and neatness of incision as well as the motifs themselves, suggest these beads are the work of a single hand. A fact underlined by the discovery in the southwest corner of Room 7 of 3 beads close together, probably part of the same necklace.

TC 38 stands apart from the others, both in shape and decoration. One end is covered with 4 bands of 3 parallel incisions radiating from the centre, while the other shows a series of alternating zig-zags and and diagonal bands of framed incisions.

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1. To which may be added the 2 serpentine beads - S108, 110 - from cemetery C.

The surface treatment is suggestive of Episkopi Ware, which, it will be remembered, was also the conclusion reached for most of the spindle-whorls.

No obvious relationship exists between a bead's dimensions and that of the central perforation, which is only to be expected considering the size of the sample.

The lack of terracotta beads predating the L.C. is surprising and slightly suspicious[1], in view of the popularity of spindle-whorls in the same material. Faience beads were quite common[2], and it is strange they were not copied in terracotta. Quite possibly some beads are published under the category of whorls, as the dividing line between both is purely arbitrary. However, only one such occurrence has been noted (see below), and the fact remains that we are apparently lacking in small 2 cm. or less terracotta beads of any shape or description, prior to the advent of the L.C. Since most of the material is funerary, perhaps stone and faience were deemed a more appropriate material for such objects, a supposition emphasised by the relative adundance of L.C.I terracotta beads. Level I at Enkomi Ayios Iakovos[3] produced 5 biconical, 1 conical and 1 globular example. The succeeding Periods II and III B[4] had 5 and 3 biconical beads respectively, with the other shapes unrepresented.

Vermeule[5] publishes a number of spindle-whorls form the exceptionally rich Tomb 1 at Toumba tou Skourou, which covers the period of L.C.IB and the first half of L.C.IIA, according to Merrillees' newly proposed chronology[6]. The biconical whorls 1-3 and 5, on Fig.54 are so diminutive (from 1 to 1.8 cm. high) they must be beads. Numbers 2, 3 and 5 bear incised decoration not dissimilar to that of TC38.

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1. As against this it should be noted that of the 40 M.C. tombs studied in the Limassol Museum, only one contained a questionable terracotta undecorated, flattened, biconical bead: LM-RR 383, Limassol Tomb 83:25.
2. Stewart 1962:264; Astrom 1972:158. 3. Dikaios 1969b, Pl.126.
4. Dikaios publishes 2 biconical "beads" from Level III A, measuring 2.8 and 3 cm. in height, which according to our criteria should be classified as spindle-whorls. 5. Vermeule 1974, Fig.54. 6. 1977:33-50. Merrillees.

In view of the number of beads from Enkomi Ayios Iakovos and a single albeit rich burial from Toumba tou Skourou, very few are recorded by L. Astrom in SCE IV:ID[1]: one spherical and 3 unclassified specimens make up the list. None have incised decoration.

A single undecorated biconical bead was excavated from the L.C.I tomb at Akhera[2].

The bead sized spindle-whorl (L. 1.5 cm) alluded to above, comes from a disturbed M.C.III-L.C.I tomb at Livadhia Kokotes[3]. It is black slipped, biconical and decorated with 2 incised punctured bands alternating with 2 rows of lozenges.

No terracotta beads are published from Episkopi Bamboula[4] though most of the decorated stone whorls are of similar proportions to the Phaneromeni beads[5]. No. B1536, 2.2 cm. high, with incised linear decoration is very reminiscent of TC 38.

One must presume that beads were found at Myrtou Pigadhes since the problem of differentiating between large beads and small whorls is mentioned[6]. None, however, are published from this site.

The nine fragmentary and intact loomweights from Settlement A all belong to Astrom's[7] Type 1, described as "roughly conical". According to the latter and Stewart[8] this shape in Early and Middle Cypriot is less common[9] than the oval flattened type, pierced near one end, which is unattested at Phaneromeni.

The loomweights from the settlement appear to fall into three categories as defined by overall size (i.e. weight) and diameter of the

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1. P. 518. 2. Karageorghis 1965a:90, Fig. 30:46. 3. Astrom 1974:56. No.30, Fig.2, Pl. X:8. 4. Benson 1972. 5. Op.cit.p.137. 6. Du Plat Taylor 1957:79. 7. Astrom 1972a:157. 8. Stewart 1962, Fig.96:20. 9. There are only 2 conical loomweights published. One from Tomb 37 ay Vounous (Dikaios 1938:79, No.61), H.12.8 cm., D. 6.3 cm., D of hole ca. 0.9 cm. Date E.C.IIIB-M.C.II (cf. Astrom 1972a:176, and Stewart 1962:338). The second was excavated by Myres at Kalopsida, most thoroughly published in Astrom 1966:7, Fig.5:1. D. ca. 7.3 cm. H. 11.3 cm. The stated weight of between 110 and 140 gr. - 4 to 5 oz. - is incorrect; this loomweight is now in the Ashmolean Museum actually weighs 365 gr. Both belong to our Type 1b.

perforation. Due to the limited size of the present sample, however, one must be cautious of generalisations.

Type 1a: Sample: 2 or 3. TC 51, 114? 186. Fig. 55:1; 59:1. The best preserved example (TC51) measures 9.1 cm. with a maximum diameter of 5.2 cm., and originally weighed about 220 gr. The transverse peforation, as always near the conical end, is about 0.8 cm. in diameter. TC 114 is very eroded, for only the top half remains, but the distance between the perforation and the apex of the cone is similar to the other loomweights of this type. The third example is damaged near the base, but would have been slightly taller with an oval perforation only 0.6 cm. in diameter.

Type 1b: Sample: 4. TC 50, 185, 187, 188. Fig. 55:1; 59:1. TC 187, the best preserved example, measures 12.2 cm. with a maximum diameter of 6.6 cm., weighing 550 gr. The perforation varies from 0.9 to 1.1 cm. across. The remainder are all damaged near the base; the average diameter of the perforation is 1.1 cm.

Type 1c: Sample: 2. TC 189, 190. Fig. 55:1; 59:1. Only the base and half the perforation remains of the best preserved example, but this suffices to show it was much larger than any of those previously discussed. The maximum diameter is 8.6 cm. and the oval perforation was at least 2 cm. across. The flat base of TC190 is of the same diameter. Presuming there is a constant relationship between the diameter, height and weight of loomweights, the dimensions of Type 1c maybe extrapolated with the following results: height about 16 cm., weight about 1000 gr.

Several other possible loomweight fragments of doubtful stratification and attribution have been omitted from this study.

Some importance has been attached to the different categories of weights since their neat classification into three groups is surely intentional and not governed by chance of discovery. Presumably their size was dictated by the type of loom and materials to be woven. If our interpretation of the pierced stones as loomweights is correct, we have then, at Phaneromeni, a series of different weights for weaving purposes, and one might ask if more than one type of loom

were involved. With the complete lack of any contemporary genre models or representations no further comments can be made.

The closest, and only existing comparison between the loomweights from Settlement A and other L.C. sites, comes from Level III A at Enkomi Ayios Iakovos[1] and belongs to Type 1a. This site produced a number of weights distributed as follows:

	Oval	Truncated pyramidal	Cylindrical	Conical
Level I	3			
Level II A & B	4	7	1	
Level III A, B & C	5	16		1

From levels II B and III A at Episkopi Bamboula[2] there came 14 truncated pyramidal loomweights approximately of the same size as our Type 1a.

The remaining L.C. examples of this class are listed in Astrom[3] as Type 2, the largest group coming from Apliki Karamallos.

Once again, Settlement A contrasts with other earlier and later Cypriot Bronze Age excavations. Episkopi Bamboula clearly demonstrates that the conical type of loomweight was abandoned by the middle of the L.C. period (Bamboula IIB), and a similar change was completed with the advent of the L.C. at Enkomi Ayios Iakovos.

In conclusion, we see that a study of the mundane - and loomweights are unquestionably mundane - can be rewarding, and suggest unforseen chronological implications.

Representations of the human figure are very rare at Phaneromeni. Excluding the highly abstract anthropomorphic decoration of 2 Episkopi Ware amphorae[4], there are but two, small fragments of plank shaped figurines: TC 193, and M13. Broken in antiquity, the former lay on the floor of Room 12, unremarkable by its size or appointments. The associated finds are equally unhelpful in seeking to explain the need

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1. Dikaios 1969b, Pl.165:6, H. 7cm., D. 5.1-5.4cm. 2. Benson 1972:137. 3. Astrom 1972c:517. 4. PC 79 and 237. Only 1 small fragment remains of each vessel.

for a figurine here, rather than elsewhere in the settlement, and we must envisage the possibility of the object not being in situ. So far as can be determined we have here the remains of an object for cult or domestic usage, found in a typically domestic setting.

The fragment is 5.2 cm. wide by 3 cm. high, with a thickness of 0.7 to 1 cm., and represents a female upper torso. (figs. 55:3, 59:2) Made of dark red-brown clay with fine white and black inclusions, it is covered with a thin slightly lustrous brown slip, typical of R.P.IV ware. The right arm is shown in low relief alongside the body, it also represents the only finished edge. A slight horizontal ridge in the ribcage area might indicate that the other arm lay across the chest. The breasts, made of 2 conical shaped pellets, are joined by 3 shallow lines, incised with a multiple toothed comb. A similar arrangement extends downwards below each breast, that on the left showing an additional 4th line.

Two panels of wavy incised lines run down the back and are probably meant to represent long flowing hair which reaches down to 3 horizontal lines, possibly a girdle or belt.

It is to be regretted that so little of this important object remains, as its present mutilated condition diminuishes the value of a comparative study.

The second figurine fragment, M13, excavated by the Missouri Expedition, is of unknown provenance. Since it was not included in Duryea's study of the funerary material from Cemetery C, it must have been discovered in one of the trial trenches, possibly even at Settlement A. M13 is 5.8 cm. long, by 4.4 cm. wide, with a maximum thickness of 1.4 cm. The hard, grit tempered, grey-blue fabric is covered with a faintly lustrous brown-black slip, typical of evolved Blue Core ware. The front is decorated with bands of diagonal incisions and punctures, running across the width of the body. These might represent an

imitation of a woven bed cover. A relief band a short distance from the base is perhaps meant to indicate a pair of feet beneath the cover. The reverse side is decorated with similar incised motifs following the longitudinal axis.

The flattened, geometric shape of the Phaneromeni figurines is typical of the late E.C. and early M.C., but rare in the time span during which the site was occupied. After generally stylised beginnings, a gradual shift towards realism resulted in L.C. figurines having more clearly defined anatomical features, often in the round. In this period the main concession to fantasy was the custom of modelling oversized multi-pierces ears[1]. The figurines from Phaneromeni might show flat archaising tendancies, but they are of a fabric and decoration consistant with Blue Core and R.P.IV ware, which discounts the possibility of their having been preserved as heirlooms. The relief breasts of TC193, a feature which first occurs in early M.C. are more common towards the close of the period[2].

Early plank shaped figurines often have a series of zig-zag lines covering the back of the head, and sometimes the shoulders as well[3]. This arrangement, incised with a single point, is clearly meant to represent long schematised hair in the same way as the combed wavy lines on the back of TC 193.

Comparative material from southern Cyprus is rare, as the Paphos

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1. Since this discussion is limited by the nature of the material under study, I shall not include a complete list of references for E.C. and M.C. Cypriot figurines, but will refer the reader to major works on the subject: Stewart 1962:347-8, fig.92-4; Astrom 1972a:152-4, 202, Fig.16. For new material and discussions on stylistic development see: Caubet 1971:7-12; Karageorghis 1975:58-68; Flourenzos 1975:29-35; DesGagniers and Karageorghis 1976. For L.C. figurines see: Astrom 1972c:511 ff., for continuity of style, especially in connection with the pierced ears see p.513, Type II:2; for relative chronology see p.584. For 2 recent examples from Hala Sultan Tekke see: Astrom et al 1976: Pl.XV:a,b; Pl.LX:3. 2. Stewart 1962, fig.93:4, 94:1. Date: M.C.I and II. 3. Stewart 1962, fig.92:2-5, fig.93:2-5, fig.94:2.

Museum has no B.A. figurines in its collections, and the Limassol Museum has but one example. It is plank shaped with long pierced ears and stubby fin-like arms, but no decoration of any kind.[1] The fabric is typical of R.P.III Mottled ware.

The remaining south coast figurine is a surface find from Evdhimou Stympouli (fig. 55). It measures 8 cm. by 4.6 cm. by 1.5 cm., and is made of a hard, light brown grit-termpered fabric with a grey core. The red-brown slip is quite thick and lustrous. Approximately half the figurine is missing along with both arms. The brow ridge and nose are modelled in relief and decorated with a series of shallow punctures, two of which represent the nostrils. Only the stump of the left arm remains, and its width (2.8 cm.) suggests that like the Limassol figurine, it may have been fin shaped. The right arm is completely missing, and a small unslipped area on the front of the body, extending slightly below the arm attachment, suggests the hand rested on the torso[2]. No other anatomical details are represented, and the figurine is without additional decoration.

The closest parallel for the modelled eyebrows and nose are Astrom's figurine Type I5[3] of M.C.II-III date, and an unprovenanced piece in the Louvre[4]. In both examples, however, the eyes and mouth are indicated by deep punctures.

To summarise the evidence we have considered, we find there are no other M.C.-L.C.IA plank shaped idols with relief breasts and combed decoration. Indeed, there are only 4 other figurines known to have come from Southern Cyprus.

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1. Cf. LM RR 339, Limassol Tomb 69; it is published in DesGagniers and Karageorghis 1976:48, fig.LIX:2, and labelled as R.P.III. The fabric and surface treatment are diagnostic of R.P.IIIMottled ware, however.
2. Cf. Astrom 1972a. fig.16:7. 3. Astrom 1972a:154, fig.16:9; Des Gagniers and Karageorghis 1976, pl.LIX:3. 4. Caubet 1971:7, pl.II:2.

The Settlement produced a number of small discs, or roundels, rather carelessly shaped from discarded sherds. Twenty five were recorded separately as being more carefully made and consequently easier to signal out from the bulk of the sherd material. They must be considered as a representative sample of a larger group and not its sum total. (Cf. fig.56:1).

Roundels are usually made from Episkopi ware sherds, more rarely from R.P.III Mottled or R.P.IV - but never from Blue Core, possibly because of the hardness and brittleness of this ware. The method of manufacture was simple: the chosen sherd was roughly chipped to form an irregular disc, and in only 2 instances was there any attempt to smooth the rough and uneven edges. Sherds were chosen indifferently from open or closed vessels which, of course, means they have either one or both sides slipped and burnished.

When studied as a group the objects fall into 3 types as defined by average diameter. (Cf. fig.56:1: bottom row, except PC384, Type 1; middle row, Type 2; top row, Type 3).

First, Type 1, from 2 to 2.7 cm., represented by 6 examples; second Type 2, from 3.4 to 4.5 cm., represented by 15 examples; and third, Type 3, from 5.2 to 9.4 cm. represented by 4 examples. The last group is also the most varied in form and size, and it can be argued that the largest roundel (PC41)[1] does not belong here. Made from the chipped, articulated ring base of a large Episkopi Ware bowl, it has been included for want of a more satisfactory atribution.

Another slight misfit at the opposite end of the scale is TC130, with a diameter of only 2 cm. it was made from an Episkopi Ware sherd with the edges carefully ground to form an almost perfect disc.

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1. PC 41 shows on the outside 4 (3 preserved) groups of 3 short incised lines near the edge, and at right angles to it. The incisions, however, were made before firing and have nothing to do with the ultimate function of the object.

On many sites similar objects would have been labelled as gaming pieces, but at Phaneromeni where games are more plentiful than pieces, most of them are too large for the depressions of all but a single Mehen and Zenet!

Other than the intentional shaping already mentioned, only PC374 (D. 6.7 cm.) shows any tell-tale signs of wear from use. The outer concave face has 2 shallow ridges - a minor imperfection typical of hand-made vessels - from which the thick red slip has been completely worn away. This might have occurred before breakage of the bowl, but seems unlikely. Here the wear marks come from light friction against a slightly rough surface.

The other roundels were not used for smoothing, scraping, or burnishing, so far as one can tell. Nor do they appear to have been thrown about or moved around as gaming pieces for Zenet or Mehen, and in any case we have seen they are too large for this purpose.

What then was their function? It has previously been mentioned that by analogy with contemporary practices in Cyprus the flat circular stones from Phaneromeni, Erimi Kafkalla, Evdhimou Beyouk Tarla and Anoyira Peralijithias were probably intended as jar or amphora stoppers, depending on their size. They were not heavy enough to damage the vessel, nor could they easily slip or blow off. In the absence of wooden or terracotta corks, the roundels would fit neatly over the mouth of small jugs and flasks so common at the Settlement A. This interpretation would explain the absence of wear marks with the exception of P.C.374, and the unfinished appearance these small functional objects with no aesthetic requirements. If PC.374 had been used as a stopper, its concave face would obviously be placed downwards in the hollow mouth of the jug, and over a period of time the friction with the rim would abrade the red slip, particu-

larly where it covered any asperities. Other roundels, smaller in size, are probably too light for a wear pattern to show up.

The K.S.U. survey provided much needed corroborative material in the form of one Type 1 (Liv TC2) and two Type 2 roundels (Pera TC2; BT TC2). These finds prove that terracotta jar stoppers were not an idiosyncracy of the Phaneromeni settlement.

The terracotta jar stopper is apparently unknown at other Cypriot Bronze Age sites, with the possible exception of Apliki[1], or such is the impression conveyed by the published material. Yet it is hard to believe that a simple, yet necessary, device of this type can only have found use at Apliki and in the Episkopi area. Dikaios published his excavations at Enkomi Ayios Iakovos in great and exemplary detail, yet not a single mention is made of any rounded sherds.

It is curious that no such objects have been recovered from tombs where they would have protected the perishable contents of jars. Maybe such an illusory measure was deemed unnecessary, or, alternatively, one might argue that the offerings were intended for immediate consumption.

Pottery roundels of similar size and type were discovered in large numbers at Godin Tepe III[2], and are known from many other Middle Eastern sites, where they are usually described as "gaming pieces"[3]. In the Hellenistic and Roman period sherd stoppers were

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1. See Du Plat Taylor 1952:161. Here 6 objects described as "pottery discs.... were cut from Apliki and Plain wares; a few were pierced". No suggestions were made as to the possible usage of either the pierced or unpierced discs. The pierced example published on Pl.XXXIXb:5 (the scale of 1/6 for this plate is incorrect, it should be ca.$\frac{1}{2}$) measures 3 cm. in diameter, and if this is an average size, the unpierced discs could indeed have been jar stoppers. 2.* Cf. Young 1969. These objects have not yet been published. 3. Two examples of this will suffice: clay discs of varying size, described as gaming pieces were excavated at Tepe Gawra; the earliest belong to stratum VII, or the Early Dynastic period (Speiser 1935:82); the other example is from Stratum III at Nuzi, it measures 2.2 cm. in diameter and is labelled as a gaming piece (Starr 1937:414, Pl.116:U).

* Personal Observation.

used for amphorae, many having been collected from the Roman ship at Yassi Ada and Kyrenia ship[1].

Miscellaneous clay objects

Under this heading have been grouped a number of heterogeneous terracottas, mostly isolated specimens. (Cf. fig.56:1 for PC 384; fig. 55:2 for the remainder).

PC 384, is a miniature roundel under 1cm. in diameter, shaped from an Episkopi Ware sherd, it is clearly too small for use as a jar stopper, and shows no signs of wear. Of unknown, yet probable stratified provenance[2] it could well have served as a gaming piece for one of the 35 Zenets recovered from the site. The absence of other comparable specimens is easily explained by their small size and possible confusion with typical unshaped sherds.

TC 174, A21 5. Almost square, 4.4 x 3.4 cm., 0.9 cm. thick. Light brown Episkopi Ware sherd from a medium sized bowl showing a good burnish on the outside. Two adjoining sides ground, one very smooth the other less, the remainder are roughly chipped. No other signs of wear. TC 174 could have served as a square jar stopper; but it might equally well have been intended as a tool or burnisher[3], thus thereby explaining the signs of wear.

PC 364, A27 2. Trapezoidal with rounded corners, length 2.5 cm.,

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1. Personal observation. 2. The roundel was found on a sherd counting table having fallen out of a tray at a time when most of the material being sorted was from stratified deposits. A further indication of its L.C.IA date is the typical Episkopi Ware fabric. 3. See Du Plat Taylor 1952:161, Pl.XXIXb:6-7 for "Pottery scrapers", and for a representative sample of "Pottery burnishers" from the mainland Starr 1937 Pl.117:H,J.

width (maximum) 1.4 cm., 0.5 cm. thick. Light brown Episkopi Ware sherd from a bowl. The edges are very smooth and regular, the result of intentional shaping rather than wear, which is also absent from either face. Usage unknown.

PC 383, Room 26. Approximately oval, one extremity more rounded. Length 3.8 cm., width 2.5 cm., 0.5 cm. thick. R.P.IV sherd from a closed vessel, with a brown-black mottled, slightly lustrous slip on the outside. Both edges and one end are either flattened from wear or intentionally smoothed. Usage unknown.

TC 74, A14 5. Length 2 cm., width 1.5 cm., thickness ca. 0.3 cm. Blue Core Ware carefully shaped to form an acute angle on 2 sides, the 3rd side is broken through the middle of a biconical drill hole (D. 0.3 cm.). No signs of wear other than the intentional shaping. Though unstratified, the fabric suggests a date contemporary with the settlement. Usage unknown.

TC 150, Room 26. Approximately the remaining half of a disc, shaped from a R.P.IV sherd belonging to a closed vessel. Diameter c. 4.6 cm. Thickness 0.4 cm. Diameter of perforation ca. 0.5 cm. Convex side with a brown-black slightly lustrous slip. Circumference ground very smooth and even. Biconical drilled hole slightly off centre. No signs of secondary wear. Usage unknown. Though it would have made a perfectly functional spindle-whorl, this seems an unlikely attribution in view of the lack of similar specimens. Pierced pottery discs are also recorded at Apliki Karamallos as indicated above n.1 p.23.

TC 177, Room 9. Roughly lozenge-shaped, length 6.3 cm., width 5.2 cm. thickness 0.6 cm. Average diameter of drilled holes 0.4 cm. Episkopi

ware sherd from a medium sized open bowl. Brown-grey lustrous slip on both sides. Edges rough and showing no signs of wear. Two holes were drilled slightly off centre, one from each side. In addition, they both have a shallow, incomplete drill hole nearby, but not in opposition. TC 177 might have been a toy, if a thin piece of twine was threaded through both holes and then knotted, it could have been spun in the same manner as children spin buttons today.

Two limestone discs of similar dimensions, with double perforations, were excavated by Dikaios at Enkomi Ayios Iakovos[1]. They might have served a similar purpose.

PC 363, A18 6. Present shape triangular, original shape unknown. Two sides form an acute angle, perhaps intentionally. Lenght 4.7 cm., width 4.2 cm., thickness 0.5 cm. Episkopi Ware sherd from a small bowl with a lustrous dark-red and grey mottled slip. Nine randomly placed biconical drillings preserved, from 0.2 to 0.4 cm. in diameter. The concave face has an additional hole, incompletely pierced.

This object might have been part of a strainer, but it seems more likely that it was the result of an experiment in drilling techniques. The position of the holes suggest they were drilled in what was already a sherd, and not the base or side of an intact bowl. The typical method of making strainers at the settlement was to punch the holes before firing the clay.

Although terracotta basins and griddles are frequently mentioned in Chapter I on architecture, they are the subject of a separate, as yet uncompleted study, and will not be discussed here in detail.

The Phaneromeni griddles, made of soft straw-tempered fabric, are circular in plan with a low rim, one face flat, and the other convex.

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1. Dikaios 1969b, Pl. 128:9, Diam. 4.3 cm., Level IIB; Pl. 135:72, Diam. 4.2 cm., Level IIIB.

The flat underside is covered with random, closely spaced perforations which penetrate to within 1 or 2 mm. of the upper surface.

Similar trays were noted at other M.C. sites and in a M.C. tomb material stored at the Limassol Museum. The type is quite common on Middle Eastern sites[1], and generally thought to have been used for baking unleavened bread.

The so-called basins are more difficult to interpret. They are usually made of a friable, coarse grit-tempered fabric, which has meant that none are even partially restorable to their original shape. The limited evidence suggests that basins were large oval or rectangular trays with low, vertical rims and one side left open. Mainly concentrated in and around hearths, they were obviously associated with the cooking or heating of a substance, though at present it is impossible to be more precise. They type has been recorded on other M.C. and L.C. sites.

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1. Kuschke 1954:110, pl. 3a, b. Tufnell 1958 pl. LIV A. Other examples are mentioned in this publication; Fugmann 1958, fig. 75, 3H 917. Dothan 1973:13, fig. 7; Yadin et al 1960 pl. CXXIII:13-15. Here called "Baking trays"; Yadin et al 1958, pl. CXVII:16-17, CXLII:9-11; Macalister 1912 Vol. II p.43, fig. 238.

V THE POTTERY FROM EPISKOPI PHANEROMENI

In the following discussion of Cypriot Bronze Age ceramics the long established taxonomy has been adhered to, and the pottery from Episkopi Phaneromeni is classified according to intrinsic criteria alone.

The most common types may be separated into 6 well defined wares, sometimes with "fine" and "coarse" varieties. In order to eliminate any possibility of confusion, some of the technical terms used in the following discussion will be defined.

Ware is meant to indicate a group, or class of pottery exhibiting similar or identical morphological characteristics. In the present context it is not to be confused with fabric which is strictly reserved for the material (clay plus tempering) from which the vessel is made. The slip is a fine solution of clay, varying in colour, applied to the pot with a brush or rag, or simply by immersion[1]. The slip may be of the same colour as the fabric, consequently very difficult to recognise. It is either left mat after drying, or burnished, in which case the surface is described as polished in Cypriot terminology. Frequently it exhibits a dull lustre, but no telltale burnish marks, a fact which suggests the lustre may have been acquired through firing. The mottled appearance of many south coast vessels was achieved - surely intentionally - by a careful stacking of pots during firing. The mottled areas are usually crackled and mat.

Surface treatment, one of the main factors defining southern Cypriot pottery, is restricted to various colours of slip, incised and relief decoration, and more rarely the use of painted motifs.

In the present study the distinctions are based on the intrinsic criteria of fabric and surface treatment, but not on shape. Later, when exhaustive studies of the Phaneromeni ceramic assemblage are completed, shape will probably be included as a determining factor.

In the approach adopted here, we clash with Stewart[2] and

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1. The term wash is not used in this study. 2. Stewart 1962:223.

Merrillees'[1] beliefs that "shape is a more reliable indicator of cultural change than Ware". This postulation is quite correct, but, it will be remembered that these scholars were primarily dealing with whole, or near complete vessels from funerary contexts[2]. The results of an archaeological survey or a settlement excavation provide few complete shapes, but vast numbers of sherds instead. By a careful study of the varying frequencies of each ware recorded at Phaneromeni and on the K.S.U. survey, we may attempt to establish a relative chronology for southern Cyprus. The main parallels will be drawn with securely dated material from other parts of the island, but we shall not attempt to fully incorporate the south coast sequence within the framework of an absolute chronology. The primary aim of this chapter is to establish a viable ceramic sequence which will assist in the classification of sites recorded in the following chapter on Bronze Age settlement patterns.

The morphological developments of R.P. I South Coast, R.P. III and R.P. III Mottled, the dominant wares of Cemetery C at Phaneromeni, remain to be formulated[3]. It will not, therefore, be possible to make specific references to that body of material when classifying the pottery collected by the K.S.U. survey. The present writer is fully conversant, of course, with the pottery assemblage from the Cemetery, whose excavation he directed, and occasional reference will be made to the funerary material. The wares from Cemetery C were, amongst others, recorded at the Area G excavations, therefore are included in the computer programme.

The remaining pottery types most diagnostic of Phaneromeni, come from Settlement A; they are Episkopi Ware and R.P. IV, followed by Blue Core Ware.

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1. Merrillees 1978:25. 2. Merrillees 1978:18. A fact which he fully appreciates. 3. The Cemetery C pottery, it's relative and absolute chronology, are being studied by L. McLaurin and others.

Red Polished I South Coast Ware

Soft, chalky, light brown to buff fabric, usually grit-tempered, but sometimes with unintentional additions of organic matter. Closed vessels generally have a grey core, whereas open or wide mouthed shapes are completely oxidised. Slips tend to be thick, flaky and lustrous, sometimes burnished to a high polish. Because of its soft fabric this pottery weathers quickly and the slip of many exposed sherds is reduced to a dull lustre. Slips are mostly red to red-brown, but sometimes vessels - especially the smaller shapes - are fired to a dark grey-black.[1] Again, due to the softness of the fabric, all vessels are thick walled, a characteristic, which failed, however, to inhibit the creative instincts of the potters. They excelled in manufacturing a wide range of sometimes elaborate shapes, from small bottles to deep conical bowls and composite vessels[2]. Conspicuously absent are hemispherical bowls, a simple shape common to most other wares.

R.P. I South Coast is, by definition, decorated with incised motifs sometimes accompanied by plastic zoomorphic elements[3]. The carefully executed incisions, usually made ofter the application of a slip, are deep, wide, and often filled with white lime. Zig-zags, herring bone patterns, broad bands of 4 or more parallel lines incorporated in an overall design, rows of punctures and concentric circles are the most favoured motifs[4]. A glance at the published R.P. I South Coast material shows that many of the shapes are totally impractical for domestic use[5] and obviously intended as funerary offerings, possibly with religious connotations for the more elaborate pieces. This interpretation is strengthened by the fact that no R.P. I South Coast has ever been recorded on a settlement site (see tab. 8).

R.P. I has been comprehensively discussed and published by Stewart

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1. Merrillees 1978:14ff. 2. Dikaios 1938, pl. LIV:5, 7-8; Stewart 1962, figs. LXXIII:1, 2-3, CVII:1-2; Weinberg 1956, figs. 10-11; Duryea 1965, pls. LV-LXI. 3. See references quoted in n. 1 above. 4. Loc. cit. 5. Cf. deep bowls with opposing trough spouts (Stewart 1962, fig. CXLII:19, 22), double necked jugs (Stewart 1962, fig. LXXIII:1-3) and vessels with applied plastic decoration.

in SCE Vol. IV IA. He believed its chronological span was from E.C. I to E.C. II inclusive[1].

All the E.C. I material from Vounous is now in Australia, with the result that no R.P. I vessels are available in Cyprus for purposes of comparison, and under these circumstances one must rely solely on the judgements of others and published material. Dr. Merrillees who saw the R.P. I South Coast from Phaneromeni and other southern sites, confirms that R.P. I and R.P. I South Coast are readily distinguishable[2], though certainly related. Although we have no imported R.P. I south of the Troodos range[3], the generic links between the R.P. I South Coast flasks and bottles from Phaneromeni and those from Vounous seem obvious. Because of the similarities between the Vounous ceramics and those supposedly originating from Erimi[4] and other Limassol District villages, Stewart chose the title Red Polished I (South Coast). His intuitive attribution, based as it was on a limited body of material, has proved correct in the light of the excavations at Cemetery C.

It should be noted, however, that incised pottery was recorded in the Philia Culture Chalcolithic III burials at Sotira Kaminoudhia, so the tradition need not have received an impetus from the north coast, and could arguably be the result of a local development. Incised decoration was much appreciated in southern Cyprus, to the extent that M.C. White Painted styles never gained acceptance, and there is no reason why a predilection for this type should not have existed in Chalcolithic III.

The sequence of south coast ceramics is complicated by the lack of undisturbed chambers at Phaneromeni. R.P. I South Coast is always associated with quantities of R.P. III Mottled and sometimes a few R.P. III ware vessels as well, and there is every reason to believe that all 3 wares are at least partially contemporary. One must conclude that

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1. Stewart 1962:225, 380. 2. Verbal communication. 3. This statement must be viewed in the light of a total lack of comparative material noted above. 4. Not a single R.P. I South Coast sherd was collected by the K.S.U. survey at Erimi Kafkalla or Kandou Balies, the only known E.C.- M.C. sites east of the Kouris river. Since the Phaneromeni cemeteries have been illicitly dug for many years, the pieces almost certainly originated there.

an archaizing tendency was responsible for the continued use of R.P. I South Coast well into the M.C..

All of the 47 fragmentary vessels recorded on the survey[1] were closed, although 8 had wide enough apertures to allow a rough burnishing of the interior. The sample comprised 1 juglet, 2 jugs, 8 jar/amphorae and 6 deep bowls, representing 5.1% of the diagnostic vessels recovered from the survey (see tab. 11).

R.P. I South Coast is only represented by 17 (0.033%) sherds from the stratified levels at Settlement A. They might have been heirlooms, but this insignificant percentage suggests their presence is accidental. Some might have been surface strays prior to the construction of dwellings in Area A, others were perhaps collected as curios from disturbed tombs in earlier cemeteries and simply brought to the settlement by the L.C. IA inhabitants. Whatever the explanation for the presence of R.P. I South Coast, there is no question of its intrusive nature.

Red Polished III Ware

Red Polished III ware is defined by Stewart[2] "includes a variety of fabrics", but the pottery is usually fired buff through the section. It is slipped, normally well burnished, and often decorated with intricate incised motifs and relief bands. In the south, R.P. III ware is characterised by a typically buff fabric - similar if not identical to R.P. I South Coast - a thickish red-brown well burnished slip often applied with a brush or rag, and a total lack of incised decoration on the body. Some R.P. III jugs have simple, wide spaced impressed and incised motifs on the neck, handle and upper shoulder, but nothing on the body. It is this absence of intricate body decoration alone that differentiates R.P. III from R.P. I South Coast in sherd form. The limited stock of R.P. III shapes known in the south does not overlap with those belonging to R.P. I South Coast, which helps to distinguish both wares.

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1. The sherd material from Evdhimou Ambelovounos and Shilles, Paramali Mandra tou Pouppou and Anoyira Kolokos was not included in the computer analysis or table 10. 2. Stewart 1962:228.

Although Table 11 shows that jugs, juglets and jar/amphorae are common to both assemblages, there is enough scope within these broad categories for the easy attribution of diagnostic shapes to each ware. After the wide necked jar/amphorae, usually with 2 handles[1] (11.4% of the assemblage), jugs are the most common shape (see tab. 11, : 6.3% of the assemblage). These always have a globular body narrowing to a small flat or pointed base, and in this respect closely resemble vessels from the north coast[2]. Incised R.P. III Gourd juglets and flasks are rare.

So far, no bowls have been recorded in this fabric, and when the need arose for this shape, Black Top bowls apparently served the purpose (see tab. 8). A single spouted bowl with a cut away spout[3] excavated by Weinberg, is the only representative of this class at Phaneromeni. It is without published parallel in the north.

Although the frequent occurrence of R.P. III at Phaneromeni and elsewhere in the Episkopi district (see tab. 8) suggests a local source of manufacture, the north coast influence is far greater than on contemporary R.P. III Mottled, and the exact relationship between the two wares remains to be established. The R.P. III Gourd juglets and flasks are indistinguishable from their north coast counterparts and should be viewed as imports.

According to Stewart[4] R.P. III ware makes its appearance in E.C. III and remains in use throughout the M.C..

The 391 sherds of R.P. III ware recorded at Settlement A only represent an insignificant - and probably intrusive - 0.76% of the total assemblage. Since the ware was always more popular than R.P. I South Coast it should be expected that more should find its way into the settlement, even if it were no longer manufactured at this time.

Larger quantities of R.P. III were noted at Settlement C, and 4.5% of the assemblage is typical of other M.C. settlements such as Alatomi,

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1. Cf. Duryea 1965, pl. LIII:3, 4; pl. LIV:1, 2; Stewart 1962, fig. CXIV-CXVI. 2. Stewart 1962, fig. LXX. 3. Duryea 1965, pl. XXXIX:2-3. 4. Stewart 1962:381-2.

Balies, Stympouli and Perali/ithias etc. (see tab. 8).

Red Polished III Mottled Ware

Red Polished III Mottled as defined at Phaneromeni, was first isolated as a separate ware by Stewart[1] "The mottled fabric retains its position and merges into a very hard variety in Middle Cypriote I-II"... It would seem that the association of hardness with a mottled surface was already a characteristic of R.P. I ware (E.C. I and II) bowls[2].

The diagnostic features of the ware at Phaneromeni in particular, and the south coast region in general, is a hard dark, red-brown coarse grit-tempered fabric. The less common smaller shapes have a finer almost sandy fabric, sometimes difficult to distinguish from Episkopi ware. All vessels are covered with a lustrous well burnished slip of medium thickness, which never shows brush or rag marks so typical of R.P. III ware. The red-brown slip is normally mottled with well defined grey to black areas, with a mat and often crackled surface. Though common on handles and lugs, incised decoration is otherwise very rare. It was always executed prior to the application of the slip[3], in contrast with south coast incised wares. Relief and plastic decoration occurs only rarely, and is normally associated with incised motifs[4]. The walls are thick in relation to vessel size, especially when compared with Blue Core and R.P. IV ware. The repertory of shapes is dominated by a functional vein, resulting in plain utilitarian pottery with a sparing use of incised and relief decoration.

The only comprehensively published funerary deposit with a high proportion of R.P. III Mottled ware comes from Tomb 6 (Area I) at Kition[5]. At least 20% of the vessels (nos. 1-3, 7, 11-12, 23, 43, 47, 50) were of this type. Although they are consistently labelled as "Red Polished IV"[6], the "brown" or "dark-red fabric" with "thick mottled mat or lustrous"

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1. Stewart 1962:228. 2. Op. cit. p.226. 3. Des Gagniers and Karageorghis 1976, pl. XXXIII:2, 4 and probably pl. XXXII:2 as well. 4. Op. cit. pl. XXXIV:1, pl. XXVIII:2. 5. Karageorghis 1974:8, pl. VIII, XI. 6. Op. cit. p.8.

slips and general lack of incised decoration, are all diagnostic features of R.P. III Mottled ware as defined at Phaneromeni.

This is the first ware recorded in some quantity at Settlement A to be discussed. Of the 1379 sherds only 64 were diagnostic, however (see tab. 10), therefore it will be more instructive to compare the ratios from Table 11 representing the survey material.

Small bowls are by far the most common shape - this is also true of Settlement A - representing 31.3% of the sample[1]. These are followed by the larger jar/amphorae - 12.6% - usually one handled with a flat base and always wide mouthed[2]. Next come large shallow, usually flat based bowls, up to 60 cm. in diameter (7.2%)[3], then one-handled jugs (3.3%) with either flat or round bases[4], and finally a varied assortment of juglets with round or flat bases and sometimes trough spouts[5].

R.P. III Mottled only represents 2.7% of the ceramic assemblage from Settlement A (tab. 9), which is barely sufficient to prove that it remained a <u>manufactured</u> commodity during the L.C. IA. In view of the extreme popularity of the ware in the preceeding period, as represented by 59% of the assemblage at Settlement G[6], it is probable that the first inhabitants of Area A brought quantities of R.P. III Mottled to the new settlement with them. An alternative explanation is that, out of habit, it continued to be produced on a small scale even when replaced by the more functional closed vessels of R.P. IV and Blue Core and the smoother or more decorated Episkopi ware bowls.

The ceramic styles of the M.B.A. in southern Cyprus are dominated by R.P. III Mottled ware, and with few exceptions (see tab. 8) it is the most popular pottery type at all pre-L.B.A. sites investigated.

R.P. III Mottled comes in a coarse, often unslipped variety used for 2 handled cooking pots[7]. If exception is made of their flat unarticulated

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1. See fig. 85:59, 60: fig. 64:209; Karageorghis 1974, pl. VIII:11; pl. CVIII:11 etc. 2. Duryea 1965, pl. XI, here described as jugs. 3. Fig. 85:58; Karageorghis 1974, pl. IX:1, 2; pl. CVII:1, 2. 4. Fig. 85:39. 5. Fig. 85:39, 55, 54, 53; fig. 87:43; Herscher 1976, pl. III:1, 10; pl. IV:1, 2, 3, 7, 8; pl. V:2, 4; Des Gagniers and Karageorghis 1976, pl. XXXIII:4. 6. See table 8 for this figure and those from other sites. 7. Duryea 1965, pls. XLIX-LI.

bases they are not dissimilar to north coast vessels of identical function[1].

Although no large storage jars or pithoi were recovered from the Cemetery C tombs, this ware remained in use at Settlement A. P207 and 213 were massive thick-walled R.P. III Mottled coarse ware vessels (fig. 64) with horned handles and elaborate relief/impressed decoration. Smaller vessels of the same type (fig. 66) are also common.

The R.P. III Mottled tombs at Phaneromeni contained 4 R.P. III flasks and gourd juglets, obviously imported from the north coast[2]. They are all datable to around the beginning of the M.C., and allowing for a reasonable time lag between the earliest appearance of R.P. III bottles or gourd juglets and their arrival in the south, a date well into the M.C. is most likely.

The vast body of R.P. III Mottled in the south, as demonstrated by the fact that most of the 60 B.A. tombs in the Limassol District Museum belong to this class suggests a long time span covering all of the M.C. at the very least.

Red Polished IV Ware

Paul Astrom's criteria for R.P. IV[3] do not correspond to those adopted for the same ware at Phaneromeni. This regrettable though unavoidable inconsistency was caused by the difficulty of defining Astrom's type in practical terms, especially with reference to the south coast material.

In an attempt to solve the problem, Dr. E. Herscher and the present writer studied the vessels described as R.P. IV from Akhera T1, Pendaya T1 and 2, and Dhenia T1 and 6[4]. In the course of this study some degree of discrepancy was noted between the different cataloguers, but it

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1. Stewart 1962, fig. CXXI. 2. P.46 is a "Gourd flask with bell-rim" (Cf. Stewart 1962:315) Type VBa which was found amongst the bones of the earliest burial in T23D. It is identical to that in Stewart 1962, pl. CI:5. Two others were discovered in an intact tomb in Cemetery J, the 4th was excavated by Murray and Smith 1900:73, fig. 125. 3. Astrom 1972a: 78, figs. XIX, XX. 4. For Pendaya and Akhera cf. Karageorghis 1965a.

emerged that we had a ceramic type at Phaneromeni capable of being unequivocally isolated in terms of decoration, form, fabric and finish, with little bias in favour of intact vessels. The pottery in question was variously described as R.P. IV[1], Proto Monochrome or Monochrome[2], and in order to eliminate further confusion it was decided to retain the title of R.P. IV for all vessels conforming to the criteria outlined below[3].

R.P. IV ware has a very hard, dark red-brown coarse grit-tempered fabric, often fired black. The fabric is not overly brittle and it is not uncommon for a R.P. IV jug 60 cm. high and 30 cm. in diameter to have walls between 2 and 4 mm. thick. Vessels are covered with a thin brown slip of the same colour as the fabric, usually showing a dull lustre, but sometimes well burnished. Most pots have some degree of mottling, which is dissimilar from the well controlled chromatic variations of R.P. III Mottled ware and should probably be considered incidental. The diagnostic features of this ware are the uneven poorly smoothed exterior and rough scratched interiors of closed vessels. The inside of bowls is similar to their outer surface. Relief decoration is very rare and P208 with its intricate pattern of applied bands with impressed thumb-marks, is without parallel. More typical are hastily executed shallow linear motifs, incised with a multiple-toothed comb. The pattern of incised hatched lozenges on P135 (fig. 62) is atypical.

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1. Karageorghis 1965a:33, no. 59; p.35, no. 71; p.90, nos. 53, 54, 57; p.92, nos. 59, 61 etc. 2. Astrom 1972c:92ff., labels all of the R.P. IV Akhera material as Monochrome or Proto Monochrome. 3. As above noted in connection with R.P. III Mottled ware, all the so called R.P. IV ware from the M.C. tombs at Kition is either R.P. III Mottled or some associated ware, but not R.P. IV according to the criteria laid down at Phaneromeni.

The necks of jugs are usually decorated with series of vertical punctures (cf. P208, fig. 62) associated with carelessly incised zig-zags. Handles are often incised with deep diagonal slashes (cf. P182, fig. 62) or a single medial groove with double thumb impressions (cf. P140, 208, fig. 62).

Jar/amphorae[1] with 4.5% of the ceramic assemblage (Tab. 10) are the most common shape recorded. Although small bowls[2] are supposedly the next most common vessel type (Tab. 9 and 10) with 2.5% of the assemblage, this figure is certainly distorted by the small number of rim fragments to be expected from jugs and juglets in comparison with bowls. Indeed, the ratio between open and closed body sherds of R.P. IV is almost 1 to 12 in favour of the latter (See tab. 9), whereas that of open to closed vessels is only 1 to 3. In view of the distortion the real number of jugs[3], juglets and jar/amphorae is certainly 2 to 3 times higher. It would appear that all cooking pots, as defined at Phaneromeni[4], are of R.P. IV ware. They represent 1.22% of the assemblage.

R.P. IV makes up 35% of all sherds recorded at Settlement A, but only 1.2% at settlement G. This dramatic increase emphasises the value of this ware as a chronological indicator. It had obviously not come into favour at the earlier site, though it is sporadically found in M.C. I-II contexts, such as Alambra Mouttes for example[5]. The tables of percentages suggest that R.P. IV reaches its peak at the end of M.C. or in early L.C., and its scarcity at most other sites[6] in the region would indicate that their latest phase of occupation predates the L.C. IA. Various factors are known to distort the results of surface sherd collection (Cf. Ch. VI), and there is a possibility that these figures are misleading and biased by the difficulty of collecting R.P. IV ware (p.330). Of note, however, is that the surface collection from Area A was representative of the one period stratified remains below (Cf. p.330 and tab. 8).

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1. Fig. 62:140. 2. Fig. 62:135. 3. Fig. 62:208 for shape only; fig. 86:40 and P.304 for the description. 4. Fig. 62:140, 219. 5. Pers. observation. 6. The settlement at Evdhimou Shilles is the closest to Settlement A, followed by those at Evdhimou Mandra tou Pouppou and Beyouk Tarla

Red Polished Punctured Ware[1]

A variety of Red Polished ware with intricate incised decoration was first noted in Episkopi Village, and recorded as R.P. IV[2]. It is from this association that Episkopi ware derived its title used on the Phaneromeni excavations. In order to follow the established taxonomy of Cypriot ceramics, however, it has been renamed "Red Polished Punctured Ware" after the diagnostic decorative style of some vessels.

This pottery has a well levigated, fairly soft grit and fine organic tempered fabric, fired at a low temperature and inconsistently oxidised. Fabric colour ranges from buff to dark brown, but when oxidised it is generally light orange. The thin to medium thick slip is carefully burnished to a characteristically smooth soapy texture, often with burnish marks showing. Vessels are relatively thick walled for their size.

Decoration is the most diagnostic feature of the ware, and consists primarily of meticulously executed hook and key patterns, lozenges and triangles filled with punctures or hatches. The overall design shows a judicious use of reserve space. The motifs are often arranged in panels on the upper body of bowls or the shoulders of jugs and amphorae[3], with alternating zig-zag bands below (Cf. figs. 60 and 61). The necks of amphorae are often decorated with key patterns, sometimes arranged so as to resemble a human face, in which instance 2 vertical pierced lugs - or ears - are placed on either side of the neck (Cf. PC78, 237, 304). An intriguing, and perhaps significant feature is that the upper lobes of the ears are bent over[4].

Only 15% (See tab. 9) of all Episkopi ware at Settlement A is decorated, and the remainder must be recognised by fabric and surface finish alone. Except for the borderline cases, it is always possible to

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1. Throughout this thesis the title "Red Polished Punctured ware" has been abbreviated to "Episkopi ware". Only in this chapter is the full title used. 2. Karageorghis 1965b:225-6, fig. 38. 3. Karageorghis 1969:489. 4. Karageorghis 1965b:250, fig. 33a, b; Des Gagniers and Karageorghis 1976: pl. XXII:3.

differentiate between R.P. III Mottled and Episkopi ware in sherd form by noting the softer, finer and generally lighter fabric and surface colour of the latter.

Although undecorated Episkopi ware occurs quite frequently in the region (Cf. tab. 8), the decorated form has only been recorded at few sites outside of Phaneromeni: namely Erimi Kafkalla, Limassol Tomb 70 (LM RR341), Paramali Mandra tou Pouppou Cemetery C, Tomb 1 and Kalavasos MANGIA[1]. The sherds from Kafkalla, Mandra tou Pouppou and Mangia came from amongst the debris of looted tombs and are of little chronological value, but the material from Limassol is of great importance. Tomb 70 was discovered with its plaka in position sealing the entrance, and in the course of excavation 4 stratae were recognised, 2 of which contained funerary remains. The earliest - Level I - yielded one complete and 6 fragmentary Episkopi ware bowls, supplemented by a mass of badly shattered Episkopi and R.P. IV jugs, amphorae and bowls. Quite obviously this material was broken and scattered during the second - Level II - burial period.

The R.P. IV and Episkopi ware from Tomb 70, whether decorated or plain, is identical in form, fabric and surface treatment to that from Phaneromeni and need not detain us further.

The most important aspect of this assemblage is that Level I is sealed by a rich and fairly accurately dated deposit containing 3 W.P. IV-VI Crossline Style jugs and a Red-on-Black bowl. W.P. IV-VI Crossline Style was manufactured from M.C. III to early L.C. I[2]. Red-on-Black is predominantly a M.C. III ware, but since it was discovered in small quantities on various L.C. I sites[3], including Phaneromeni (15 stratified sherds) it obviously remained in use during the early part of the period. This tomb is unique in southern Cyprus where clearly stratified funerary deposits and imported pottery are extremely rare.

The Episkopi ware sherd from Kalavasos Mangia is of a local fabric

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1. Personal communication from Dr. I. Todd. 2. Astrom 1972a:198-9 and personal communication from Prof. Astrom. 3. Cf. Merrillees 1971:56ff.

quite different from that found at Episkopi, which suggests that this ware has quite a wide distribution.

None of the Episkopi ware recorded from Settlement G was decorated, a fact which would discount the possibility of the elaborate and carefully executed motifs of R.P. I South Coast ware having served as model. If an unbroken tradition of meticulously incised pottery could be traced from E.C. III-M.C. I R.P. I South Coast ware to M.C. III- L.C. IA Episkopi ware, then it should be recognised at those sites such as Phaneromeni G which made use of the M.C. version of the ware.

Episkopi ware dominates the Settlement A ceramic assemblage with 37% of the total. Whereas R.P. IV was mainly reserved for closed types - presumably utilitarian liquid containers and thin-walled cooking vessels - the opposite is true of Episkopi ware (See tab. 9 and 10). The ratio of open to closed body sherds is 3 to 1, and that of bowls to closed shapes is 25 to 1. Small hemispherical undecorated bowls[1] represent 74% of all vessels recorded. These are supplemented by a few large bowls - nearly 2%. Jar/amphorae are the next most common shape - 1.6%[2] - followed by jugs - 1%[3] - and juglets - 0.4%[4] - .

Unlike most other wares which may be found in a coarse variety used for storage jars, Episkopi ware is reserved exclusively for small to medium sized vessels.

Following a similar pattern to R.P. IV, Episkopi ware is uncommon at Settlement G. Only 10.5% of the assemblage belonged to this ware and not a <u>single</u> sherd was decorated. This fact combined with its scarcity in M.C. suggests that it may be used as an accurate chronological indicator.

<u>Drab Polished Blue Core Ware</u>[5]

"Blue Core ware," or to use the longer but more accurate title "Drab Polished Blue Core ware" was first isolated as a distinctive ceramic

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1. Fig. 61 for both decorated and undecorated types. 2. Fig. 60:104, 183. 3. Fig. 60:181, 177. 4. Fig. 60:164, fig. 61:170, 101.
5. Throughout this thesis the title "Drab Polished Blue Core ware" has been abbreviated to "Blue Core ware".

type at Phaneromeni. This pottery embodies certain external characteristics of Red and Black Slip wares, and indeed for the first season of excavations at Phaneromeni it was described as Red-Slip/Black-Slip ware. The 3 D.P. Blue Core ware vessels on fig. 87 (nos. 41, 47 and 45) clearly demonstrate the range of surface colour and finish encountered at a single site. When the idiosyncracies of widely separated communities are expressed in terms of ceramic styles the variety of surface treatment of Blue Core ware is even more striking. This trend is obvious when comparing the surface of predominantly buff Blue Core ware from Kissonerga Tombs 1, 2 and 3 (PM2141-3) with the typically dark brown to grey vessels from Pyrgos and Limassol. Phaneromeni and the local sites between Paphos and Limassol have a more balanced colour range from buff to black, through red and orange. Although incised decoration is frequently but not invariably found on Blue Core vessels and since some shapes are recorded in other wares[1], the diagnostic common donominator of the ware is a grey-blue core and a pockmarked surface.

That Blue Core is generically linked to Drab Polished and Red-Slip/Black-Slip wares there is no doubt, but in the south both intact vessels and sherds are easily distinguished from the latter types as defined by Astrom[2], hence the necessity to add a descriptive adjunct to the nuclear title of Drab Polished. Drab Polished Blue Core ware is geographically and chronologically well defined in the south coast region where Drab Polished and Black-Slip/Red-Slip are extremely rare.

The fine, very hard buff to orange grit tempered fabric of Blue Core ware is fired at a high temperature for a short time. Typically, the core is blue-grey with only the surface oxidised. This last is often pockmarked[3] due to the uncontrolled expansion of the white (limestone or shell) tempering material. Vessels have a thin slip, sometimes

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1. Cf. R.P. IV (fig. 86:40), Blue Core (fig. 86:44, fig. 63:200) and Episkopi ware (fig. 60:164, 177) spouted jugs, or Blue Core (fig. 63:192, 197) and Episkopi ware (fig. 60:104, 183) amphorae, etc. 2. Astrom 1972a: 83, 84, 89-90. 3. Cf. fig. 84:47, 48; fig.86:44, 45, 41, 42, 46, 47; fig. 87:56, 41, 47, 45.

well burnished but more often fugitive and mat. They are usually thin-walled for their size, though less so than R.P. IV.

Most Blue Core vessels are closed as indicated by the 7 to 1 ratio of closed to open body sherds from Settlement A, but according to Table 9 small bowls and jar/amphorae[1] are found in equal proportions - 1.6%. However, the same distorting factors mentioned in connection with R.P. IV probably account for this discrepancy, and the ratio of jar/amphorae is several times higher in reality. Jugs[2] - 0.65% - and juglets[3] - 0.4% - are more rare.

From all appearances askoi[4] are quite common in this ware at Anoyira Peralijithias, though none were recognised at Phaneromeni.

Blue Core ware represented 8.4% of the stratified sherds from Settlement A, up from 3% at Settlement G. The difference in ratio is perplexing in view of its popularity at other M.C. sites (See tab. 8). Only a small area of Settlement G was excavated and the lack of this ware is perhaps due to non chronological factors such as the nature of the structures and erosion.

Medium sized storage vessels are common in this ware, probably due to the fact that the properties of the fabric were well suited for larger shapes. This is equally true of the large pithoi or storage jars, fully 80% of which were made of Blue Core ware at Settlement A. They have wide flaring necks, broad shoulders and an inverted piriform body with small knob bases (fig. 65:199, 120). The widest point is at or slightly above mid-body. Each jar has a pair of vertical opposing tab handles from mid-neck to upper shoulder, usually decorated with finger impressions and grooves. The lower neck and bodies are normally decorated with relief impressed "pie-crust" bands. The finest restored example (fig. 65:199) was nearly 1.10 cm. high and 90 cm. in diameter with walls only

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1. Fig. 63:292, 197. 2. Fig. 63:200. 3. Fig. 84:48, fig. 86:41, 42, 44, 45, 46, 47; fig. 87:41, 47, 45. For an assortment of Blue Core south coast jugs and juglets see Herscher 1976 pl. II:1; pl. III:6; pl. IV:4, 5,; pl. V:2-8; Des Gagniers and Karageorghis 1976, pl. XXXIII:1, 3; pl. XXXVI:1. 4. See fig. 84:86, 57.

1 cm. thick.

A number of Blue Core ware vessels from the south coast region have already been published. They have variously been described as "Red Polished" by implication, if not be definition[1], "Red Polished IV"[2], "Black Slip"[3] or "Drab Polished"[4]. Unequivically, they all belong to the Drab Polished Blue Core category.

New evidence suggests a later date for the Kalavasos and Limassol tombs published by Karageorghis in 1958[5]. Those with Drab Polished Blue Core ware should all belong to the M.C.. Astrom suggested[6] a M.C. II-III date for Drab Polished ware which is known to have remained in use until an early stage in L.C.[7].

The evidence from Phaneromeni and the K.S.U. survey (tab. 8) suggests Drab Polished Blue Core evolved from a Chalcolithic III prototype[8] into the most common ware during all of the M.C. after R.P. III Mottled. Its position in E.C. remains unclear, as to be expected with our present limited knowledge of the period. With the advent of L.C. Blue Core decreases in popularity and represents around 7% of the Settlement A ceramic assemblage. The hard, metallic pock-marked fabric, often covered with a dark lustrous slip is an obvious precursor of Base Ring ware. Indeed, were it not for the carinated rim shapes and flattened wish-bone handles of Base Ring sherds collected at Erimi Kafkalla, they would be indistinguishable from certain varieties of Drab Polished Blue Core ware.

Proto White Slip Ware

At least 151 sherds of Proto W.S. ware, representing a maximum of 34 vessels, were recovered from stratified levels at Settlement A[9].

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1. Karageorghis 1958, fig. 21:T4/5; fig. 22:T8/13?; fig. 23:T5/1; fig. 27:24, 17, 20; fig. 28:T3/1; fig. 29:6, 10, 9, 12. 2. Des Gagniers and Karageorghis 1976:33, 34, pl. XXXIII:1, 3; p.34, pl. XXXVI:1; Karageorghis 1968 fig. 70-71. 3. Herscher 1976:11, pl. I:2, pl. II:1. 4. Herscher 1976:15. The Black Slip and Drab Polished vessels published by Herscher in 1976 were typed before the Phaneromeni ceramic typology was established (summer 1976). 5. Herscher 1976:13. 6. Astrom 1972a:190. 7. Karageorghis 1965a:54, 56, 58, 61, fig. 17. 8. Cf. Sotira Kaminoudhia p.268. 9. The total of Proto W.S. from all levels of the settlement is much higher.

Although Proto W.S. forms an insignificant 0.29% of the total stratified sherd sample, its presence is of utmost importance, for it is the most accurate chronological indicator of all the wares recorded at Phaneromeni.

Proto W.S. from the settlement comes in 2 fabrics. One is hard, blue-grey grit-tempered with a very light yellow surface and no obvious slip (cf. fig. 64:128)[1]. The other is softer, chalky white grit-tempered, also without an obvious slip (cf. fig. 64:176). Both types are decorated with mat, fugitive brown paint.

All sherds and partly restored vessels are of closed shape, in contrast with the more balanced bowl/jug ratios at other sites[2]. The 4 small semi-circular feet attached to the flattened base of P176 are unusual in the Cypriot repertory.

There is little doubt that the Proto W.S. was not indigenous to the Episkopi region[3]. Of considerable importance is the association between the copper ore bodies and Proto W.S. ware suggested by Popham in 1963[4]. If L. Courtois' chemical analyses of W.S. ware are correct[5], this association is not fortuitous, but the direct result of mining activities. According to her, white aluminium hydroxide and alunite are only found in the enriched ore bodies, and the "white slip" of W.S. ware is a by-product of copper production. It is possible, even probable that the Proto W.S. - and later W.S. I and II - were manufactured in one of the southern mining centres such as Skourka Ayios Mamas, Ephtagonia or even Kalavasos. The rarity of Proto W.S. in these areas, by comparison with the north eastern periphery of the Troodos massif, is probably more the result of incomplete archaeological survey data than a real lack of contemporary deposits.

Proto W.S. has been comprehensively discussed by Popham[6] who is in agreement with Karageorghis[7] and Merrillees[8] in attributing the ware to the very end of M.C. or the earliest phase of L.C.. Karageorghis mentions

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1. For a plate of the same vessel cf. Herscher 1976, pl. II:6. 2. Popham 1963; see also Popham in Astrom 1972b:432. 3. Popham p.436 in Astrom 1972b. 4. Popham 1963:286. 5. Courtois 1972:12-13. 6. Popham 1960. 7. Karageorghis 1965a:55. 8. Merrillees 1971:60.

that no Proto W.S. has been excavated in a true M.C. III funerary context[1], and the only stratified occurrence, at Enkomi Ayios Iakovos[2], was associated with a single sherd of L.C. date. This last was "Monochrome", not a particularly diagnostic ware and one which is easily confused with R.P. IV, its predecessor. Since no diagnostic L.C. wares - W.S. or B.R. - were recorded amongst the 51.000 stratified sherds from Settlement A, we must conclude that Proto W.S. belongs to the earliest phase of the L.B.A., in other words the L.C. IA. Following this reasoning, Settlement A must have been established in the transitional M.C.- L.C. period and destroyed in L.C. IA at a time when the ceramic repertory remained essentially M.C. in character[3].

White Painted and Red-on-Black Ware

White Painted pottery was recorded in almost the same quantities as Proto White Slip ware. One hundred and sixty two painted sherds belonged to a maximum of 57 vessels, predominantly W.P. IV in style. Both decoration and fabric suggest that these, and the rare Red-on Black (15 sherds) vessels were imported from outside the south coast region[4].

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1. Karageorghis op. cit. 2. Popham 1963:287. 3. Merrillees 1971:56 ff. 4. These wares will be comprehensively studied in the final excavation report.

VI. BRONZE AGE SETTLEMENT PATTERNS IN SOUTHWEST CYPRUS

The excavations of Episkopi Phaneromeni have shed much light on the cultural manifestations of Southern Cyprus during the first half of the second millennium B.C.. Previous attribution of sites to the Early or Middle Cypriot depended on the presence or absence of W.P. pottery, a criterion which resulted in most tomb groups and settlements from the region being dated to the earlier period[1].

A large number of chance B.A. finds from the Limassol District suggested that Phaneromeni was far from being an isolated community, and indeed the contrary would have been surprising in view of the many Neolithic and Chalcolithic settlements recorded by Dikaios[2]. The variety of pottery types found within the area hint at the possibility of establishing a sequence of Early and Middle Cypriot settlements which will help fill the gap between Chalcolithic I Erimi Pamboula[3] and the earliest remains at Phaneromeni. This task could only be attempted with the new understanding of South Coast ceramic styles and their relative chronology as established by the K.S.U. excavations.

Once the sequence was confirmed it became necessary to verify in which respects the M.C. and L.C. IA settlements at Phaneromeni were typical communities within a large framework. With intent to answer these questions, to better our understanding of the site's environment - especially its relationship with contemporary establishments - and to establish the local settlement pattern, an archaeological survey of the Episkopi area was a requirement.

Limassol District has never been the focus of a systematic site survey as undertaken by Advisio et al, Catling or Hadjisavvas[4]. With other sections of the South Coast it has been mentioned at irregular

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1. For the best example of a M.C. site being dated to the E.C. see Weinberg 1956 in connection with Phaneromeni. 2. Dikaios 1961: Pl. 1. 3. Dikaios 1962:198 ff.; see also an important article by Watkins (1973: 34-61). 4. Advisio et al 1975; Catling 1963; Hadjisavvas 1977.

intervals in connection with pre-L.C.[1] remains, but the first person to provide detailed site descriptions was Gjerstad who visited Erimi Kafkalla, Phaneromeni and Sotira Linika. Some years later, Erimi Kafkalla, and by implication, Phaneromeni, were mentioned by Dikaios[2], who also excavated "Philia Culture" tombs near Sotira and Anoyira. In 1963 the district was subdivided by Catling into his areas 8 and 9, the latter comprising "the plains and rivers of the south coast from Limassol to Ktima[3]". His focal points of interest, however, lay elsewhere[4], and he apparently made little attempt to discover new sites east of the Kouris river within area 9. For the E.C., Catling mentions 6 sites in the proximity of Episkopi[5], all of which were previously recorded by Dikaios or Gjerstad; but for the M.C., Phaneromeni alone is listed[6]. Added to the above references, a number of chance finds have been reported by Karageorghis in the BCH "Chronique de fouilles et découvertes archéologiques à Chypre", and latterly an article in the RDAC by Herscher[7] and a monograph by Des Gagniers and Karageorghis[8]. All of these objects, mostly consisting of pottery, are stored in the Cyprus and Survey Museums in Nicosia, the Limassol District Museum and the Curium House Museum in Episkopi.

Without reassessment, little new information could be gleaned from this disparate assemblage of data. Furthermore, it should be noted that many stray finds are of dubious provenance, thereby of marginal value in attempting to establish a chronological framework for the different sites. Finally, the complementary material provided by a controlled survey should help to confirm or invalidate the reputed

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1. Gjerstad 1926:15. Phaneromeni is not mentioned by name but the description of an E.C.-M.C. necropolis on rocky ground south of the main road, can only refer to cemetries C and J. We have already seen that the earliest reference to E.C.-M.C. finds in the area is in Murray et al 1900:73. The site in question is Phaneromeni. 2. Dikaios 1940:160; "the necropolis opposite Erimi on the right bank of the Kouris" must be Phaneromeni. For other references by Dikaios to Erimi Kafkalla and for those to his excavations at Sotira and Anoyira see descriptions of Kafkalla, Kamminoudhia and Trapezi. 3. Catling 1963:135. 4. Catling 1963:130. 5. Ibid. p.148 ff. 6. Ibid p.156. 7. Herscher 1976:11 ff. 8. Des Gagniers and Karageorghis 1976.

provenance of several important ceramic items from the area[1].

The stretch of coastline between the Akrotiri peninsula and Cape Aspro (Fig. 2) is a discontinuous series of small river plains separated by low foothills that gradually rise up towards the dominant peak of Mount Olympus, 30 kilometers inland. The hill country mostly consists of chalks, limestones and marls of the Pakhna formation, with intrusions along the river valleys of the calcarious siltstones and alluvium that predominates on the coastal fringe (Fig. 67). Many plateaux and ridges show a thick deposit of havara, sometimes with pockets of Kokkinokhoma. The former is a Cypriot term broadly translated as limestone, but more specifically meant to indicate "secondary limestone" deposited by the evaporation of water rich in calcium carbonate during the summer months[2]. Havara is an important source of lime - calcium oxide - as witnessed by the many circular lime kilns (alonia) in the survey area. Kokkinokhoma or red-earth, describes various qualities of terra-rossa.

The present shoreline owes much of its configuration to the Kouris river, that carries, each winter, newly eroded material to the sea. It should be counted as one of the major rivers in Cyprus, and until recently never ran dry[3]. By comparison, the so-called Evdhimou and Paramali rivers are quite insignificant; they are mere torrents which only remain perennial for part of their courses. A number of springs scattered throughout the countryside significantly influenced the settlement pattern.

The Episkopi region shares the semi-arid Mediterranean climate common to most of Cyprus. Mean annual temperature is 19.5°C at Akrotiri[4], with a mean daily average of 12.5°C and 13°C in January and February, and

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1. Stewart 1962: Fig. LXXIII:1-3; CVII:1,2,4; CXLII:19,20. 2. Elliott and Dutton 1962:75. 3. In a normal year the Kouris swells with rain-water in early November and continues to flow until early May. Prior to the tapping of several large springs near Khalassa, it retained enough water for the village children to swim during the summer.
4. Mr. F.P. Sims, the head of the Meteorological Service in RAF Akrotiri was kind enough to supply the information on rainfall and temperatures.

26°C in July and August, calculated over a period of 30 years. The mean maximum and minimum temperatures for the above mentioned months are 16 - 9°C, 17 - 9°C, 31 - 22°C and 32 - 22°C. December, January and February receive 384 mm. of the 460 mm. yearly average rainfall, again calculated over a period of 30 years. The tables show a 13 to 14 year dry cycle.

Today the local flora is dominated by carobs (Certonia siliqua) and olives[1] (Olea europea); on every hill, no matter how steep or barren, and in most fields, these trees are found growing. Carefully tended in the valleys and near villages, in the areas of marginal productivity they are increasingly left wild. Localised stands of Cyprian Aleppo pine (Pinus brutia) are not uncommon, especially between Episkopi and Sotira. Lentisc (Pistacia lentiscus), thorny broom (Calycotome infesta) and spiny burnet (Poterium spinosum) are the three main constituents of the local maquis[2].

The steeper areas are painstakingly terraced, and their thin soil cover put to maximum use for growing cereals. Many of the smaller terraces are now left fallow and invaded by scrub, but the larger ones, and most of the upland plateaux and valley bottoms are still planted with cereals, or more recently turned over to vines. However much the region has suffered from the depredations of flocks and erosion, by Middle Eastern standards its diversified agriculture is productive, and until the close of the XIXth century it supplied a modest, though adequate, livelihood to the indigenous population.

Strictly defined, the survey area is tetragonal in shape and measures nearly 85 square kilometers. It is bounded to the east by Erimi village, to the northwest and west by Anoyira and Evdhimou Jetty, and hence back along the coast to Phaneromeni and Erimi. In addition to the villages of Erimi and Anoyira, those of Evdhimou, Kandou, Paramali and Episkopi lie within the survey, and their combined population in

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1. Cf. Christodolou 1959:48 for additional information on the local vegetation. 2. Op. cit. p.48, 214.

1974 was just under 5,000, as compared to around 1,600 a century ago[1].

The factor determining the size and shape of the study region was the known location of the Erimi Kafkalla and Evdhimou Beyouk Tarla cemeteries in the Kouris and Evdhimou valleys. From these reference points, the valleys were prospected in both directions: the Kouris was investigated for a distance of 3.5 km. north and south of Kafkalla, but Kandou Balies and Phaneromeni were the only sites noted. At the head of the western branch of the Evdhimou valley, Anoyira Livadhia is 4 km. northwest of Beyouk Tarla, and Evdhimou Stympouli is 3.5 km. to the south. These sites were arbitrarily taken as the western limits of the survey.

Map references to each site are twofold. First the 1/5000 Cadastral Plan number is given with the plot numbers containing archaeological remains. Second, the 1/5000 Topographical Series DLS 17 (DOS 155) with sheet and grid reference to approximately the centre of the site. This cross reference system is necessary as topographical maps become obsolete quite rapidly, whereas the Cadastral Plans are merely updated. The map references given by Catling in Patterns of Settlement in Bronze Age Cyprus (1963) for example, can no longer be readily checked, since the maps he used are unavailable and the new series uses a different grid system.

The B.A. sites here described were not discovered as the result of a systematic archaeological survey as defined by Schiffer et al[2], because the thorough investigation, on foot, of this hilly, densely wooded area (Fig. 2) would have required an unacceptable expenditure of time and money. Rather than place the emphasis on obtaining a comprehensive regional settlement pattern with little topical information on each site, stress was placed on the methodical recording of site location, their archaeological features - architecture, tombs - the

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1. Goodwin 1976. Each village is recorded as having the following number of inhabitants: Anoyira: 620; Episkopi: 1987; Evdhimou: 609; Kandou: 513; Sotira: 181; Paramali: 160. 2. Schiffer et al 1978:2.

collection of representative artifacts and pottery, and the mapping of site boundaries.

All sites were located by one of the following means. First through information contained in the Cyprus Survey records, kept at the Cyprus Museum in Nicosia. Part of the records were published by Catling (1963) and it was directly or indirectly through this source that Anoyira Trapezi, Erimi Kafkalla and Kandou Balies were reinvestigated. Another 4 sites belong to the second category; they include Anoyira Stavlismi, Erimi Vokolomandra, Evdhimou Kilades and Sotira Kaminoudhia, all listed in the museum records. A study of the relevant Cadastral Plans resulted in the location of their place names. Sites of the 3rd category, Anoyira Kannavokambos and Peralijithias; Evdhimou Amolo and Beyouk Tarla and Shilles; Paramali Mandra tou Pouppou were discovered through information received from members of the Department of Antiquities and local residents[1]. Finally, the 1978 K.S.U. archaeological survey discovered Anoyira Livadhia and Kolokos, Evdhimou Alatomi, Ambelovounos and Stympouli, which brings the total of loci with archaeological remains to 18. Not included in this number are 3 so-called "farmsteads", close by Beyouk Tarla or within the boundaries of Episkopi village.

From the above it emerges that only 5 sites were discovered as the result of archaeological surveying by the K.S.U. team.

Since the systematic approach to surveying was not adopted, one might ask how representative the results might be for the area under study. Two factors argue favourably for the representativeness of the data. First, the writer was in contact with local farmers, rural constables and shepherds for a period of 3 years, during which time much incidental information was gathered. The second point is that numerous

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1. Warrant Officer K. Cameron (RAF) and his son Paul were responsible for the discovery of Amolo and Peralijithias. Lieutenant A. Campbell a helicopter pilot in the Army Air Corps discovered the cemeteries of Evdhimou Shilles and those on the west bank of the stream at Paramali Mandra tou Pouppou. He was also responsible for aerial photographs of various sites recorded on the K.S.U. survey. His help is greatly appreciated.

land improvement schemes involving terracing, have been undertaken in the Limassol District, with the result that many isolated tombs and entire cemeteries have been uncovered. The landowners are well aware of the antiquity and subsequent value of such finds, and when questioned in the right manner will usually indicate the whereabouts of visible or recently buried tombs. Through discussion with the rural constables and shepherds, who in the course of their yearly peregrinations walk over almost every parcel of land, a number of post L.C. sites were discovered, as well as the eastern cemeteries at Paramali Mandra tou Pouppou which in turn led to the location of the settlement nearby.

If these tactics are combined with those making use of recorded information in Museums and the physical exploration of certain potentially reqarding areas, it is likely that most sites will be discovered. The definition of a "potentially rewarding" area is required. Catling[1] has already noted that E.C. settlement patterms were dependent on water supplies and arable land, and it was a reasonable assumption that the location of M.C. sites in the Episkopi area would be governed by the same criteria. Parts of the Evdhimou valley combined these natural factors, and a more systematic survey in these vicinities resulted in the discovery of 5 sites[2]. In most instances the tell-tale remains of a plundered cemetery were recognised first, and they often led to a settlement nearby.

Fortunately for archaeologists, the burial customs of the B.A. peoples in Cyprus were, so far as can be ascertained from the surviving evidence, centered around the deposit of funerary offerings in artificial chambers. These were entered by way of an open passage cut in the rock, and known as the dromos. The cave-like chamber was sealed by a large stone slab, or plaka. In common with most of the ancient world the

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1. Catling 1966:27.
2. These sites are Evdhimou Alatomi, Stympouli and Ambelovounos and Anoyira Livadhia and Kolokos.

Cypriots appear to have believed in after life[1], and even humble burials were equipped with pottery vessels containing food, drink and probably unguents. The more fortunate might receive, in addition, utensils, tools and weapons. Obviously, a surface survey can only hope to recover a fraction of the whole picture, and must usually be content with partially silted up, back-filled chambers and broken pottery.

Typically, the existence of a tomb was recognised by a concentration of newly broken, lime-encursted sherds scattered around a crater of varying depth in the top soil, with a small expanse of bedrock at its base. The degree to which dromoi were definable was generally dependent on the local rock formation, soil deposit and the lapse of time since looting. As the amount of loose top soil increases so does the silting process, and vice versa. The presence of a lime deposit on large sherds is important. With rare exceptions, pottery from settlements, even when newly brought to the surface by the plough or through terracing, is broken in small pieces, often with rounded edges. In the Episkopi area it never shows a lime encrustation, which only occurs through the prolonged exposure to water percolating in a tomb chamber. If the vessel is entirely covered over with soil this phenomenan will not occur.

A cemetery is defined as one or more dromoi, since throughout the island's history tombs are normally clustered. Isolated burials are interpreted here as the only visible representatives of a larger group, obscured by soil or vegetation.

For the purposes of this study, a settlement is defined as an observable cluster of artifacts - ceramic or lithic - covering at least 100 sq. m. Such units were easily distinguished from small cemeteries

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1. One must assume that the grave goods in Cyprus are the manifestation of beliefs resembling those of the Ancient Egyptians, for example. With reference to Cyprus cf. Catling 1966:30; Kassimatis 1973:121. Cf.op.cit. for a detailed study of Cypriot funerary customs from E.C. to C.A. I.

by the absence of tombs or craters with their attendant pottery, and by the presence of querns and handstones. Clusters of less than 10 x 10 m. were arbitrarily classified as farmsteads since they can hardly have included more than one structure[1]. Settlements A and G at Phaneromeni have demonstrated that the average room size was 3 x 5 m., and that the overall architectural plans were accretive. A single unit would be expected to cover about 100 sq. m. The term of "farmstead" was not applicable to concentrations of sherds from only one type of vessel, on the assumption that it might have originated from the breakage of a single item. At all 3 farmsteads the pottery was accompanied by architectural remains or stone artifacts.

The bulk of the surveying was done by a team of 6 people over a period of 4 weeks starting in August 1978[2]. The sites discovered before and after the K.S.U. survey were sherded by the writer and his family[3]. These collections, and a representative assemblage of stone and terracotta objects were studied by the survey team as preliminary orientation. Each member was conversant with a typical range of E.C.-M.C. artifacts before the start of any fieldwork.

On the 1/5000 Cadastral Plans most sites were conveniently subdivided into numbered plots, often bounded by natural or man-made features: terrace walls, gulleys, ravines and scarps. When a plot with archaeological remains proved unmanageably large it was then subdivided into smaller units, 100/1, 100/2 for example. Since emphasis was placed on recording architectural features and mapping artifact scatters, the large size of many sites (over 5 ha.) meant that a systematic survey

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1. For a discussion of Early Minoan farmsteads cf. Blackman and Branigan 1977, p.71 especially. 2. The members of the Kent State University survey included the following: Sandy Thome, Joel Hanson, Harry Heywood, and Jim Bircher often assisted by Paul Cameron. I wish to thank them all for their good companionship, dedication and hard work. 3. My wife Laina and our children Philip and Alessandra visited many a site in the course of sunday outings. (Philip, aged 3, discovered the first artifact - a piece of worked flint - which led to the discovery of the Neolithic-Chalcolithic site of Trapezoni).

was beyond the resources of the project.

Anoyira Peralijithias was chosen as a type-site without a visible necropolis. The exact extent of its boundaries was determined by teams walking parallel at intervals of about 5 m. All sherds and small artifacts were collected, and the remainder were recorded with the architectural features. A similar technique was employed for selective areas at Erimi Kafkalla, Sotira Kaminoudhia and Evdhimou Stympouli. It was hoped that the data recovered from these sites might, by extrapolation, enable the better understanding of other communities where the survey was more specific and concentrated on the peripheral areas with regard to determining site boundaries. Plots were assigned to one or two person teams who then methodically crisscrosed the area, collecting and recording as above described.

The ceramic finds were classified according to the nomenclature in use at Phaneromeni, and for those wares not found at the site a detailed description is included in the text. Sherds were always recorded, counted and stored by plot or sub-plot. They have been computer seriated in order to assess the chronological relationships between different sites. Unless otherwise specified, however, the pottery chart from each settlement and cemetery represents the sum total. This convenience was necessitated by the sheer size of many settlements subdivided into 10 plots or more, which would have required an equal number of small pottery charts. Noticeable differences between sherd samples from various areas were checked for in detail since they could indicate chronological or functional divisions within the site.

In the course of sherding recently plundered cemeteries it was noticed that many pièces from the same pot might be collected. If such material were to be compared with that from long-since disturbed dromoi or from settlements, the results would show a bias in favour of the wares represented by the smashed pots. Therefore it was necessary to determine the minimum number of items for each ware. The combination

of different findspots, shapes, sizes and surface finish of individual vessels plus the differences in hardness, texture and colour of fabrics, makes their separation quite feasible when dealing with such quantities as recorded on the survey[1].

All ceramic, stone and terracotta finds were inventoried by site and handed over to the Curium House Museum at the close of the season. Labelled by site and plot number, they are available for study in the storerooms of the above museum. Considerations of size and quantity preculded the collection of all lithic artifacts, (especially querns and tethering stones), but those left in situ were recorded according to the Phaneromeni typology. They were discussed more fully and used as comparative material in the lithic and terracotta chapters.

As noted above, the survey's goal was to collect a maximum of topical data for each site, with intent to isolate the variables determining the settlement pattern within the study area. This first stage completed, an attempt will be made to collate the local data with those from the rest of the island. Individual sites will then be discussed in the following terms:

1. Nature of the site: settlement, cemetery, settlement-cemetery, or farmstead. What relationship, if any, exists between these units? Determination of site boundaries.

2. What environmental, agricultural or social reasons governed the location of a site? Were physiographic features such as hill-tops, rises, ridges or valleys of importance? To what extent does altitude, accessability to water, arable land, the sea and the local biota play a role? In which order of preference were these factors taken into account?

3. Access to trade routes, if any. Do some sites show more evidence of external contact?

4. Architectural remains, including those of a funerary nature.

5. Non ceramic artifact assemblage: determination of site function with due consideration given to the 4 preceeding variables.

6. Ceramic assemblage: determination of site function and relative chronology.

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1. The maximum number of a single type was 112 R.P. III Mottled ware vessels recorded at Evdhimou Beyouk Tarla. The division was further simplified by the fact that many sherds were collected from individual dromoi.

EPISKOPI PHINIJIN

The locality of Phiniki or Phinijin[1] in upper Episkopi village (Fig. 2) is now a football field. In 1964 several air-raid trenches were sunk in the southeast corner of the pitch, and almost 2 m. below the present surface were found the remains of a mud brick structure and an incised R.P. bowl[2], the first recorded example of Episkopi ware. Unfortunately for archaeology the trenches were later back-filled and the evidence obliterated. No B.A. sherds or stone artifacts were recorded in the vicinity, which is perhaps normal for a location so near the village centre. Were it not for the mention of "mud brick" the bowl might well be explained as a stray find. Phinijin is indeed an unlikely spot for a B.A. settlement, since the nearest source of water is the Kouris 1250 m. distant, and the local topography argues against the existence of a spring, even in antiquity. What we have here is a small establishment - possibly a single unit - in the midst of prime agricultural land and close to the inland biota, but far from a water supply. The evidence suggests that this fortuitous discovery was a farmstead, probably associated with the large L.C. IA settlement at Phaneromeni, 1 km. away to the southwest.

ERIMI KAFKALLA

The settlement of Erimi Kafkalla[3] was established on a broad south-sloping ridge overlooking the east bank of the Kouris. It lies about 3 km. north of Phaneromeni, at an altitude of between 120 and 140 m. above sea level.

The artifact scatter - both pottery and stone - covers a minimum of 14 ha., and stretches 400 m. along the steep scarp once eroded by the river (Fig. 72). To the east the settlement ends short of a shallow

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1. Map references: Cadastral Plan: LVIII:5, Plot nos. 59, 60, 61; Topographic Series: 58/V, 91080-36730. 2. Karageorghis 1965b:255-6, Fig. 38. 3. Map references: Cadastral Plan: LIII:53, 61, Plot nos. 53-7, 79, 299-302, 310/3, 310/4, 311; Topographical Series: 53/XXLX, 38720-92340. Kafkalla or Kafkallia is a Greek Cypriot term describing the exposed stone of a mesa, or barren limestone crust lands: cf. Goodwin 1977:261.

gully, 250 m. from the ridge at the narrowest point. A thin light-brown soil, averaging 30 to 50 cm. in depth, with some more substantial pockets, covers most of the havara bedrock in which some 260 chamber tombs were cut. Since the bedrock has been extensively used for domestic or industrial (?) purposes along both the west and south scarps of the settlement, as well as above several dromoi, there is no evidence to suggest that intensive soil erosion has taken place since the B.A. Then, as now, bedrock must have been on, or close to the surface.

Today the vegetation consists of a regular scatter of carob, with a few olives and many lentisc bushes. Depth of deposit permitting, the soil is rich enough to support a crop of cereals, elsewhere it is simply tilled to enhance the quality of spring grazing and tree growth.

No Bronze Age remains are visible on the surface, but where exposed, the havara often shows signs of human activity in the form of various shaped cuts, mostly resembling sub-rectangular basins, circular mortars or post holes.

The reasons for establishing a settlement here are not clear. The nearest source of water is the river, now some 42 m. down a steep slope: it is at the closest 250 m. and at the farthest 600 m. distant. There might have been a spring in the gully on the western edge of the site, but today there is no evidence of such. Other than offering a fine view in all directions, the position embodies no natural defences except for the scarp to the west. Proximity to arable land might have been a consideration, but unless the crops needed constant attention - and protection - a site nearer to the water supply would seem preferable. It is possible, however, that no other site was available. A small settlement already existed near the foot of the western bluff at Kandou Balies, and a short way down stream the inhabitants of Phaneromeni could have monopolised arable land on both sides of the river. As we shall see below, the ceramic evidence suggests that Phaneromeni and Balies were established

first. Another settlement at Sotira Linika[1] and the farmstead at Episkopi Phinijin would manage the rest, leaving the inhabitants of Kafkalla with no alternative but to settle above the river. Another explanation, more difficult to verify, concerns the possibility of an access or trade route channelling goods[2] and people from Morphou Bay and the rich hill country down the Kouris valley.

The first reference to Erimi Kafkalla is by Gjerstad who described the site in these terms "Erini (sic), Limassol district. 1 km. north-west of the village on a hillplateau, east of the Kouris river, is a necropolis with tombs from the Early Bronze Age, where I found Red polished pottery, and on the northern slope of this hill are tombs from the Late Bronze Age. Base-ring and White slip ware were observed by me"[3].

Dikaios probably visited Kafkalla during his excavation of the Chalcolithic site in the village below. The sherds from Kafkalla published in RDAC 1937-39 (1951) could have been collected by him. More pottery was gathered by Catling in 1952[4] and the site is listed twice in his catalogue of E.C. and L.C. sites. According to his map reference[5], the E.C. cemetery no. 45, with R.P. sherds, is located 100 m. southeast of the water tank, in the midst of the cemetery. No. 46 is 300 m. north-east of the tank, on the northern perimeter of the necropolis. The same position is given for the L.C. cemetery, no. 85, which is suspicious since we found no L.C. pottery here. Catling's entry no. 43, a L.C.

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1. Gjerstad who discovered the site (1926:15) mentions that it is located between Sotira and Episkopi . . . "a settlement from the Early Bronze Age. Foundation stones and large saddle querns cover the surface. Red polished ware was picked up by me . . .". I have repeatedly attempted to locate this apparently important site. The Cadastral Plan does show a locality by the name of Ellinika due north of Episkopi village. If Gjerstad's informant was a Turkish Cypriot, which is likely since Kandou, the nearest village, was then Turkish, he would have pronounced the name as "Linika". Even with the assistance of the landowner I have only been able to discover 2 small Type 2 quern fragments at Ellinika, certainly no foundations or Type 1 querns. 2. The existence of such trade is hinted at by north coast imports and P.W.S. at Phaneromeni. 3. Gjerstad 1926:15. 4. Catling 1963:150. 5. I was able to plot the sites following Catling's coordinates on the 1/50.000 series of maps kept in the Cyprus Museum. These maps and their grid system are now obsolete and commercially unobtainable.

cemetery with W.S.I and B.R.I is 100 m. south of the tank in the area where L.C. pottery was common.

The L.C. settlement at Kafkalla, no. 83, containing "B.R.II, R.L., Mycenean IIIA-IIIB pithos" sherds is about 450 m. south of the water tank. This locality is known as Vokolomandra, and according to the Cyprus Survey records (CS1824) some half-looted tombs were discovered here. Both tombs and settlement obviously belong together. A brief survey of Vokolomandra revealed many plundered chamber-tombs, some stone artifacts, and L.C. pottery.

Three tombs were discovered during levelling operations for the water tank[1]. When excavated by the Department of Antiquities the partially disturbed chambers yielded a number of W.S. and B.R. vessels, a Proto W.S. jug and a R.P. IV incised bowl.

In the detailed description of the archaeological remains at Kafkalla, the tombs will be treated first. They are easily visible and numerous, and have long been the pray of looters. Some dromoi are so weathered they could have lain open for centuries.

The survey produced a scatter of some 227 dromoi extending for 550 m. along the north-south axis of the plateau (Figs. 74, 75:1). Perhaps due to a thicker soil cover in the B.A., no chambers were dug along the east side, which, though inhabited, was also lacking in rock-cut basins and mortars.

As will be seen on the plan, tomb locations follow no clear pattern, only a random progression from north to south. All dromoi were plotted, and whenever possible a detailed sketch was made, indicating the position and number of chambers. The entire dromos was seldom visible, and out of the 227 located a mere 42 were clearly defined. Since most of the cemetery has a reasonable deposit of top soil, combined with an extensive spread of lentisc bushes, it is probably that one third to one half of the original dromoi remain undetected[2]. Their proximity cannot

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1. Karageorghis 1972:1008. 2. This is suggested by the clustering of dromoi at cemeteries C and J at Phaneromeni or A and C at Amolo.

have been dictated by the lack of suitable rock for grave digging, as it is locally abundant at all 3 sites.

The most common shape, with 15 examples recorded, (Fig. 75:1) was oval or approximately oval, and averaged 1.60 m. by 1.20 m. Then came the rectangular type with 10 examples, which average 1.70 m. by 0.95 m. They usually show a ratio of slightly less than 1 to 2 between length and breadth. Five dromoi were elongated irregular trenches measuring anywhere up to 7.80 m. by 1.50 m. The remaining 12 were either approximately circular, square, triangular, L-shaped or semi-circular. In most instances it was impossible to measure the dromos' depth, but by measuring the distance between top of stomion - or entrance - and surface of bedrock, the height could be deduced quite accurately. All intact stomions at Phaneromeni are between 25 and 70 cm. high, with an average of 45 cm., and they are normally flush with the floor of the dromos. On these grounds we may estimate that the Kafkalla dromoi were cut betweem 0.55 m. and 1.70 m. below the surface of the bedrock[1].

In contrast with the Phaneromeni and Evdhimou valley cemeteries, dromoi with multiple chambers are uncommon at Kafkalla. So far as could be ascertained, 23 out of the 227 plotted had 2 chambers, and only 4 had above that number.

The characteristic round or oval chambers, entered near the domical roof, varied greatly in size. The largest on record measured 5 x 4.70 m., and the norm would seem to be around 2.5 m. in diameter. One particularly large chamber (161A) which contained both M.C. and L.C. sherds, had a central supporting pillar, a unique feature in southern Cyprus.

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1. The dromoi at cemeteries C and J at Phaneromeni were an average of 50 cm. deep.

The overall picture of the ceramic assemblage from the necropolis is best shown in the following table:

	sherds	%
R.P. III ware	21	7
R.P. III Mot. ware	171	60
R.P. IV ware	8	3
Episkopi ware	18	6
Blue Core ware	28	10
Coarse	14	4
Misc. L.C.	27	9
W.P. III	2	0.7
	289	99.7
Misc. late	77	

The table shows a conspicuous lack of R.P. I (South Coast) incised wares, which suggests that the site was settled slightly later than Phaneromeni. As might be expected, R.P. III ware is rare, and mainly restricted to the northern half of the cemetery. R.P. III Mottled ware remains, as always, the most common type throughout. The rare occurrences of R.P. IV ware coincide with the L.B.A. pottery distribution pattern. Undecorated Episkopi ware in sherd form is often difficult to distinguish from the smaller and finer R.P. III Mottled specimens, and this might account for a few of the sherds listed here. A similar confusion is impossible with incised Episkopi ware, and the two sherds of this type are important: one belongs to a closed vessel and the other is part of an askos. Outside of Phaneromeni, Episkopi Phinijin and Erimi Kafkalla, incised Episkopi ware has only been recorded in a tomb from Limassol[1].

The Blue Core sherds call for no comment since the ware is now common from Limassol to Paphos, with sporadic occurrences further inland. Two small W.P.III sherds are obviously imports from the north or the east. A small number of W.P. vessels reached Phaneromeni and southwest Cyprus, and if Kafkalla was indeed on a north-south trade route, W.P. pottery should be well represented.

Coarse ware storage jars are known from M.C. tombs[2], but the few

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1. The Vasilikos Valley Project (Todd 1977) found a decorated Episkopi ware amphoriskos made of local clay. Information kindly supplied by Dr. I.A. Todd. 2. Several large storage jars excavated from the M.C. tombs at Pyrgos are on display in the Limassol District Museum.

sherds recorded here are probably from the settlement.

The L.C. sherds, mostly W.S. I with a few occurrences of W.S. II and B.R., were collected from dromoi concentrated in the southern third of the necropolis. Scattered amongst tombs of M.C. date, they might simply come from earlier chambers reused by the L.C. people who usually buried their dead at Vokolomandra, a mere 350 m. to the south.

The survey failed to produce additional L.C. material, which is surprising for an area so heavily settled in the M.C.. It does, however, corroborate Catling's work, for he only records (Catling 1963:163) the L.C. sites of Episkopi Bamboula, Erimi Kafkalla and Episkopi Kaloriziki between Limassol and Kouklia. The local dearth of L.B.A. remains might indicate that the population was mostly concentrated in the town site of Episkopi Bamboula, surrounded by a number of isolated - therefore undiscovered - farmsteads. We shall see at Beyouk Tarla that the idea of small site loci, probably farmsteads, already existed in the M.C..

In summary, the large sprawling necropolis of Erimi Kafkalla was in use throughout the M.C., with a few burials early in the L.C., possibly reusing older chambers. The 227 dromoi recorded, gave access at the very minimum, to 260 burial chambers.

A cemetery of such proportions must have either served a large settlement throughout its existence, or a smaller one for a longer time span. Since the ceramic assemblage is basically M.C., with only minor L.C. representation, the former explanation seems preferable.

As mentioned, the scatter of cultural debris covers at least 14 ha., with the highest concentration located between the west scarp and the cemetery. This bias, however, might be caused by the present lack of ground cover and intensive ploughing. Necropolis and settlement do not fully overlap, as the occupation debris ceases nearly 250 m. south of the last chamber.

The surface survey of Kafkalla recorded 218 stone artifacts, 4 pieces of worked flint and one terracotta spindle whorl. Thirty eight

of the most representative stone objects and the terracotta were inventoried for the Curium House Museum.

In order to obtain a fair qualitative and quantitative picture of surface finds within the site, the material from 2 areas was totally collected[1]. The first, 299/1, measured 215 x 25 m. (5300 m^2)[2] and was proportionally richer than the second area, 53-4/1, of 200 x 20 m. (4000 m^2), adjacent to the south.

Area 299/1

Axe no. 1	1
Rubber-pounder (usually with tertiary use as a hammerstone)	9
Rubbing stone	3
Grinder-pounder	14
Pounder	19
Heavy pounder	1
Pecking stone	1
Perforated stone (hammer)	3
Saddle quern no. 1	29
Saddle quern no. 2	53
Jar cover	3
Gaming stone (Zenet)	1
Total	137

	Sherds
R.P. III Mot. ware	9
R.P. IV ware	2
Blue Core ware	18
Coarse ware	18
Misc.	7
L.C. (W.S. II)	1
Total	55

Misc. late (mostly indistinguishable post-classical and pre-medieval coarse ware sherds) 142

The small quantity of B.A. pottery recovered, in sharp contrast with the number of stone finds, is probably the result of centuries of ploughing and weathering. The frequency of Blue Core ware might suggest the area was occupied mostly in a later phase of the M.C., otherwise a higher percentage of R.P. III Mottled ware would be expected. An alternative explanation for the Blue Core ware ratio is that due to its

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1. A selective sample of stone objects was kept, the remainder being noted. All sherds were collected. For pertinent remarks on archaeological sampling see: Hester et al 1975:283. 2. See fig. 72.

hardness this pottery is better preserved than most.

Area 53-4/1

Rubbing stone		1
Pounder		2
Heavy pounder		4
Saddle quern no. 1		7
Saddle quern no. 2		17
Gaming stone (Zenet)		3
	Total	34

R.P. IV ware		1
Epsikopi ware		1
Coarse ware		12
Misc.		5
	Total	19

Misc. late	35

The scarcity of finds in this area might be caused by artificial terracing and stone clearance, a traditional, yet effective method of land improvement. Three gaming stones from the extreme southwest corner of the plateau help to define the boundaries of the settlement. Here too, the lack of R.P. III Mottled ware might be of chronological significance, though a diminuitive sample like this precludes any meaningful conclusions.

Surface finds from other areas of the site are the following:

Axe Type 2?		1
Axe Type 3		1
Rubber-pounder		2
Grinder-pounder		7
Pecking stone		2
Perforated stone (hammer)		7
Bowl		1
Basin		1
Pivot stone		1
	Total	22

The lithic assemblage from Kafkalla is typical of what might be expected at Phaneromeni[1], although the relatively high number of perforated stone hammers is noteworthy. In spite of the bias for such objects easily recognised by the surface collector, their abundance could have a bearing on the activities of Kafkalla's inhabitants. Another point of interest is the total lack of large perforated stones,

1. Heavy pounders are the only tool type from Kafkalla unrepresented at Phaneromeni.

believed to be hitching blocks. Like Type 1 querns, these large and almost indestructable objects are not likely to have been far removed from their original location, and if our interpretation is correct, their absence might suggest the lack of certain types of livestock.

The east side of the settlement, coinciding with the southern 2/3 of the necropolis, was littered with stone objects, especially saddle querns[1]. From here came the only pivot-stone, as if additional proof of habitation were needed!

Since all the material here described was the result of surface collecting, we cannot be certain of its date. A sizeable quantity of post Bronze Age sherds were found, and these indicate that a settlement existed here or nearby. The stones can only be dated by association with those from Phaneromeni. With the exception of the heavy pounders, all belong to types recorded at Phaneromeni, and one might argue for force in numbers. Although saddle querns were still in use during the Hellenistic period[2], the more efficient square hopper type of quern and the rotary quern were much preferred, both of which are conspicuously absent from Kafkalla. There are quite simply too many saddle querns and stone tools for them all to have been manufactured in the Iron Age unless the site was a backwater, which is unlikely in view of its location near to Curium.

At Phaneromeni the bedrock was frequently utilized for domestic or other purposes, and mortar-like cavities, runnels and ditches were all part of the repertory. A similar exploitation of the havara was recognised at Kafkalla, especially near the western scarp.

Two shallow rectangular troughs, a circular basin and a mortar were found in apparent association with 4 widely scattered but otherwise typical dromoi. Parallel features were recorded near burial chambers

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1. The finds from this area were not listed and counted. 2. Verbal communication from Dr. A. Walker, referring to Idalion. An Arcaic genre model of a saddle quern in use is further evidence for the survival of this "primitive" method of grinding cereals during the Iron Age at Kurion. cf. Ohnefalsch Richter 1893 pl. CLXXIII:19h.

at Amolo but nowhere else[1]. Here at Kafkalla the cuttings might have belonged to domestic installations, as cemetery and settlement overlap, but at Amolo, where no settlement exists, another explanation is required. If a cultic purpose is suggested, the rarity of these features is a problem. We must presume, in view of the stereotyped burial customs, that a common religious belief existed during most of the B.A., therefore, if several chambers required a trough outside, many more ought to show a similar arrangement.

Figures 73 and 75:2 show the most representative concentration of pits and troughs, Feature 1, the largest, consists of a shallow (7 cm. deep) sub-rectangular cut sloping towards a narrow runnel leading into a deep (27 cm.) circular basin. Though damaged, Ft. 6 could be part of a comparable installation. It would seem this arrangement was meant for draining a substance from the trough into the basin, which is usually fitted with a sump.

With the exception of Ft. 9 which might have included a runnel, the other cuts are simple mortar-like depressions. The diameters range from 10 to 43 cm., and the depths from 5.5[2] to 35 cm.. No alignments or patterns are anywhere visible to suggest that at least some features had architectural associations. A simpler explanation would envisage the inhabitants congregating along the suitably denuded rock scarp to pound foodstuffs. If winnowing of the end product were necessary, here was an obvious spot to take maximum advantage of the prevailing westerly winds.

Similar rock-cut depressions of varying size and depth are common at early sites in the region. Sotira Teppes and Trapezonia[3] are

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1. There are numerous mortar-like cavities, and cuts at the L.C. necropolis of Episkopi Bamboula. It is impossible to say whether these features are associated with the burials or the architectural remains (Personal observation). 2. Through the action of stagnating water which dissolves minute quantities of the havara, some of the depressions will have increased in diameter and depth. This type of weathering is easily recognised, however. 3. A hilltop settlement half way between Limassol and Paphos discovered by the writer in 1977. The pottery would date the site to late Neolithic, early Chalcolithic, See fig.1 for its location.

especially relevant in this respect.

The most intricate, and so far unique, series of cuts to be discovered is 150 m. to the south of area 54 (see Fig. 73). Here they appear to have been associated with a now missing structure, and at face value little sense can be made of the arrangement. The rectangular trough communicating with a deep square sump via an elevated runnel is akin to Ft. 6, though slightly more elaborate. It probably served the same purpose as another sub-rectangular basin and sump - here communicating via a hole - 8 m. to the north.

We have no firm evidence for the date of the various cuts and depressions, since most are now empty of debris, and the remainder were not excavated. Kafkalla yielded much post Iron Age pottery, suggesting a later occupation in the vicinity. Though similar cuts were not found in such profusion at other M.C. sites - indeed they were only recorded at Evdhimou Alatomi and Shilles - elsewhere the greater depth of soil or absence of suitable rock might have inhibited their existence. They are a common feature at Phaneromeni in areas H and J, and often contained M.C. pottery, and since the evidence for similar post Iron Age installations is lacking, by association alone we may tentatively date those at Kafkalla to the M.C. period.

KANDOU BALIES

On the east bank of the Kouris below Kafkalla, there stand the imposing remains of a water mill that once supplied Kandou village with flour. On the Cadastral Survey maps the locality is shown as Kandou Pelentros, but the local villagers prefer the older term of "Balies"[1]. This must be the site of Pales, probably discovered by Dikaios, and listed as E.C. by Catling but not located by him[2]. Upon investigation

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1. Map references: Cadastral Plan: LIII:53, Plot nos. 132/2, 293-6; Topographical Series: 53/XXIX, 38750-92000. The word Balies is probably derived from the term valies or valley. 2. The material recorded in the Cyprus Museum as 1938/III-27/2, consists of R.P. sherds and a stone tool (see Catling 1963:150. Site no. 47).

the fields surrounding the mill showed much evidence of M.C. occupation. The sherd scatter covers the lower portion of the steep eastern bank of the Kouris, and extends into the field (No. 293) south of the ruin on the very edge of the riverbed. If the sherds are in situ and not displaced from higher up the scarp when it was terraced, we can prove that the river now flows at approximately the same level as in the Bronze Age. Opposite the mill it is only 4 m. lower than field No. 293.

The settlement at Balies is small, (fig.72) covering about one hectare, with the main pottery concentration in no. 293. The following types were recorded:

	sherds	%
R.P. III ware	12	7
R.P. III Mot. ware	123	72
R.P. IV ware	1	0.6
Episkopi ware	18	11
Blue Core ware	5	3
Coarse ware	11	6
	170	99.6
Misc. late	41	

The scarcity of Blue Core ware[1] in relation to the proportions of R.P. III and R.P. III Mottled ware suggests that the settlement was abandoned early in the M.C., before the main phase of occupation at Kafkalla.

No stone artifacts were collected, although 3 Type 1, 6 Type 2 querns, and 2 rubber-pounders were noted in situ.

An absence of tombs in the area suggests that the dead were buried on the plateau above.

SOTIRA KAMINOUDHIA

Sotira Kaminoudhia[2], a site of small proportions in comparison

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1. The single R.P. IV sherd is almost certainly intrusive, and belongs to a later phase of occupation at Kafkalla. Since the easiest route to the river, hence the water supply, was via Balies, there is surprisingly little "late" M.C. pottery. No L.C. sherds at all were recorded.
2. Dikaios 1948, Pl. VI(b); 1961a:14. Map references: Cadastral Plan: LIII:43, Plot nos. 40, 46, 47, 52; Topographic Series: 53/XIX, 87160-41630.

with Erimi Kafkalla, was established a short distance from one such spring that first attracted Neolithic people to the area[1]. The settlement and cemeteries (Fig.71) lie between 290 and 300 m. above sea level, about 7 km. in a straight line northwest of Phaneromeni. Two distinct tomb groups - cemeteries A and B - overlook the habitation area, now a series of terraced fields stepping down towards the spring[2] in the south, a mere 250 m. away. Occupational debris covers approximately 2 ha., but the discovery of some Type 2 quern fragments between the cemeteries suggests this estimate is conservative.

Most top soil has been eroded in the vicinity of the necropoli, but the terraces below are well covered with a light chalky colluvium, now cultivated for cereals. Olives and carbos are abundant, with pine and lentisc concentrated on the rocky slopes. The local topography suggests that even prior to terracing there would have been an ample supply of arable land to support a small agrarian community.

Bronze Age architectural remains are restricted to 3 chamber tombs in the eastern cemetery (B), though others do exist, as proved by Dikaios' excavations in cemetery A. He reports having discovered a Philia Culture burial here, but the material remains unpublished[3]. Catling[4] mentions the necropolis in connection with Linika, neither of which he located.

The material excavated by Dikaios, labelled as Sotira Kaminaria Tomb 1, is now in the Cyprus Museum[5] and consists of the following pieces.

T1/1. Cooking pot. Fig.68:1. Intact. H. 27 cm., D. 20 cm., D. of base 12 cm.
Very hard, coarse dark grey-black grit tempered fabric. Thick matt slip, mottled from red-brown to black. Ovoil body with flat base and 2 opposed vertical handles from shoulder to rim.

The shape is intermediary between a coarse ware vessel from Philia Vasiliko (Dikaios 1962, fig.83:21) with smaller thicker handles, and an R.P. I cooking pot from Vounos (Stewart 1962, fig.CXX:14) with similar

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1. Dikaios 1961:1. 2. The spring mentioned by Dikaios (1961:1) is no longer visible, as the square has been cemented over. 3. For the location of the tomb see Dikaios 1948:17. The excavation is briefly mentioned in op. cit. p.23. 4. 1963:154. 5. I am grateful to Dr. V. Karageorghis for permission to catalogue and comment on the pottery from the tombs at Anoyira Trapezi and Perali,jithias, in addition to the present material.

handles but proportionally smaller base. Following Stewart's Corpus, R.P. I cooking pots usually have smaller slightly articulated flat bases, and very thick walls. The thin walls and squat appearance of T1/1 are an additional link with the piece from Philia Vasiliko.

T1/2. Jug. Fragmentary. Estimated height ca. 25 cm. , D. neck 3.5-4cm. Soft buff straw tempered fabric with a grey core. Medium thick red-brown slip, too worn to preserve any burnish marks. Flat base 8 cm. in diameter. At least 1 handle.

The flat base and soft buff fabric are both features characteristic of Chalcolithic III[1] and E.C. jugs, and this piece could equally well belong to either period.

T1/3. Spouted bowl. Fig. 68:3. Intact. H. 17 cm., D. of base 8.4 cm. Hard grit tempered brown fabric, slightly buff on outer surface. Thin brown slip with one large black patch. Burnish marks clearly visible, running in all directions. Coil built. Large cylindrical spout attached at mid-body with a horizontal lug placed at the same level on the opposite side.

This bowl cannot be closely paralleled in the Chalcolithic III or E.C. cultures. Deep spouted bowls from Philia Vasiliko are of similar proportions (Dikaios 1962, fig. 80:3) but without lugs or handles, which, it would seem, only appear in the E.C.. At this stage - in the North at least - the flat base is atrophied, and often articulated, and the spouts are proportionately smaller in diameter with flaring rims (Stewart 1962, fig. CXXIII-V). If abstraction is made of the handle, this piece would sit more happily with the Chalcolithic III bowls than with their successors.

T1/4. Straight sided bowl (probably flat base). Fragmentary. D. ca. 12 cm.. Soft, very coarse straw tempered fabric with a grey core. Poorly fired, very flaky clay. No slip visible. This piece is out of character with the other material from the tomb.

Straight sided bowls are rare in Chalcolithic III[2] and absent in E.C. Indeed, they are equally uncommon in Chalcolithic I and II, a single example being known from Kalavassos Site B (Dikaios 1962, fig. 64:62).

T1/5. Brown polished bottle. Fig. 4:1,2. Fragmentary. D. of rim 2.2 cm.. Possible D. of body 9 cm.. Very thin walled: 0.35 cm. thick. Very soft grey-black chalky fabric. Some evidence of a fugetive brown burnished slip. Two sherds from a straight plain rim. The white lime filled

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1. In this report the term "Chalcolithic III" is used instead of "Philia Culture" for the very reasons succintly outlined by Merrillees p.33-4 in Astrom 1966. 2. Only one example is published: Dikaios 1962, fig. 72:5 from Kyra-Alonia.

decoration on the body consists of 3 parallel lines framed by diagonal incisions. The base of the neck was incised with chevrons.

Incised R.P. ware is known from Chalcolithic III onwards. Fortunately a fragment of the straight rim was preserved. It affords an excellent comparison with those from Chalcolithic III (Dikaios 1962, Fig. 82:6, 8) which have not yet acquired the flaring profile that develops gradually into the bell shaped rims of R.P. III (Stewart 1962, fig. CI:2-11). The decorative motif covering the body is best compared with those on R.P. ware vessels from Philia Vasiliko (Dikaios 1962, fig. 80:24; Fig. 82:4) and R.P. I vessels from Ayia Paraskevi (Stewart 1962, figs. LIV:5; CII: 7, 9; CIV:6) belonging to the very beginning of the B.A. Several R.P. I pots from Vounous (Op. cit. figs. CIII:4; CII:4; CV:10) make use of an identical pattern.

T1/6. Straight sided bowl with flat base. Fig. 3:5. Intact. H. 8 cm., D. 16.5 cm., D. of base 8 cm.. Soft brown sandy fabric with some larger grit inclusions. Light grey core. Thin, very worn brown lustrous slip, with one grey patch.

For the shape see the comments in connection with T1/4.

The material from Tomb 1 may be supplemented by that recovered during the survey of cemetery A. Since the grave goods discussed above find their closest parallels in the Chalcolithic III period, it is only to be expected that the sherds defied a neat classification following the criteria adopted at Phaneromeni. The pottery from both cemeteries and settlement may be subdivided in 4 wares, one of which (no. 2) is recognised here for the first time.

No. 1. Buff coloured, fine grit and chaff tempered fabric with grey or buff core. Quite thick red-brown slip, lightly burnished. On the larger, less weathered sherds, irregular burnish marks are clearly visible. This last characteristic is the only means of differentiating it from R.P. III ware, so common at Amolo cemeteries A and C. When sorting small, weathered sherds the 2 wares are quite indistinguishable. Two sherds of this ware are decorated with incised motifs, as show on fig. 69:3, 4.

The pottery described here is certainly that referred to by Dikaios

(1962:153-156, 165) as R.P. Ware from Philia Culture (Chalcolithic III) sites. He mentions "the traces of the burnishing tool being often seen" (Op. cit. p.153). Stewart (1962:223-4), however, mentions the "evenly well polished" surface of R.P. I (Philia) Ware, and makes a separate category for R.P. I (Philia) Stroke Burnished Ware, as yet unrecorded south of the Troodos. The incised sherds are problematic: the fabric is similar and the motif of no. 3 is identical to those of R.P. I South Coast pots from Phaneromeni (PH/P 15, 30, 60 and 61). The sherds could equally be classified as R.P. I South Coast or R.P. Chalcolithic III ware. To pass a satisfactory judgement on the matter, the excavation of Kaminoudhia settlement and a few tombs would be necessary. For the time being the incised sherds are classified as a sub-type of No. 1 ware.

No. 2. Dark brown, from fine to medium grit tempered fabric, with a grey or brown core. The thin brown slip, sometimes highly burnished, but more often worn, shows occasional signs of mottling. The fabric is not so hard as, and appears to be sandier than, diagnostic R.P. III Mottled ware. It is best represented by 3 fragmentary hemispherical bowls and a jar rim. These, and similar sherds, made up 145% of the total collected from the cemetery. The 2 bowls, T1/3 and T1/6, belong to this type.

In sherd form, especially when weathered, Type 2 pottery is easily confused with R.P. III Mottled, unless care is taken to compare both wares side by side. It might be argued that the distinction is too subjective to be of use for the classification of pottery styles. But since the previously mentioned bowls, jug and a number of sherds are neither R.P. I South Coast nor R.P. III Mottled ware, they must be categorised separately within the R.P. typology. In view of the typically dark fabric and slip, which are closer in colour to brown than red, the term of Dark Red Polished ware (D.R.P.) is well suited.

One of the difficulties of distinguishing R.P. III Mottled from Dark R.P. ware is probably caused by the fact that the former develops out of the latter, and obviously there exist a number of pieces belonging

to an interim phase. Several sherds of this type have been classified as R.P. III Mottled ware.

No. 3. Brown, medium grit tempered fabric with a grey core. Thin red-brown slightly burnished slip. The fabric, surface colour and treatment is typical of poor quality R.P. III Mottled ware, and as such it has been classified.

No. 4. Fine orange buff, grit tempered fabric, with a light grey core[1]. Both sherds of this ware are small - the largest measures 6 x 3 x 0.9 cm. - and belong to closed vessels. A thin layer of about 1 mm. on the outer surface, and 0.2 mm. on the inner one, retains the original fabric colour. It also has a tendency to flake off. The fabric is both harder and denser than any other collected at Kaminoudhia, but proved to be softer than diagnostic Blue Core ware[2].

Though unmistakably Blue Core, these sherds suggest by their softer fabric and improperly fired surfaces, that the process of manufacture was not perfected. With only 2 sherds available for study it would be unwise to over-emphasize the possibility that we have here the very beginning of the Blue Core ware tradition.

No Blue Core ware was recognised amongst the 200 sherds from the settlement, which suggests at this stage, that it was only reserved for burials.

Following the above criteria, the pottery from Cemetery A may be classified as follows:

		sherds	%
No. 1.	R.P. Chalcolithic III ware	45	38
No. 1.	R.P. Chalcolithic III ware (incised)	2	1.7
No. 2.	Dark R.P. ware	17	14.5
No. 3.	R.P. III Mot. ware	47	40
No. 4.	Blue Core ware	2	1.7
	Misc. (mostly D.R.P. ware)	5	4
		118	99.9
Misc. late		1	

1. The core is greyer and darker than characteristic Blue Core Ware.
2. Several Blue Core ware sherds were scratched with a steel blade, and when compared, those from Kaminoudhia showed the deepest indentation.

With the study of the surface collection from Cemetery A completed, the material excavated by Dikaios may now be assessed with reference to other South Coast ceramic traditions. The grave goods from Tomb 1 present a number of unique features. Fabrics are reminiscent of, though separate from, those excavated at Episkopi Phaneromeni. The cooking pot, T1/1 is coarser than functionally similar pieces from Phaneromeni. The 2 bowls, T1/3 and 6 are Dark R.P. ware, and the Brown Polished bottle, T1/5 belongs rather loosely to R.P. Chalcolithic III ware.

Flat articulated bases, as will be seen in connection with Evdhimou Trapezi, are a well established feature of the ceramic repertoire. They may be traced to Chalcolithic III antecedents, with a strong Chalcolithic I and II flavour, particularly with respect to T1/3, 4 and 6. However, the shape of T1/1 and the use of a lug on T1/3 suggest a more evolved tradition than at Philia Vasiliko. The straight sided bowls, T1/4 and 6, which might be seen as representing an archaizing trend, must at this stage be considered as aberrations. The fabric of T1/6 is even softer and coarser than most Neolithic pottery from Sotira Teppes! Too little comparative material from this period has been excavated to enable us to make firm pronouncements on the straight sided bowls from Kaminoudhia.

The incised motifs of the bottle T1/5 and the 2 R.P. sherds, represent the earliest occurrence of this form of decoration in the south[1]. They follow the well established tradition at Philia Vasiliko, and should be regarded as the antecedents of R.P. I South Coast ware with its elaborate incised style.

On the far side of several broad terraces, 100 m. to the east, Cemetery B consists of 3 eroded chamber tombs dug into the hillside[2]. No dromoi are visible, and it would seem none existed, though it is possible they were obliterated by the looters' spoil heaps and the

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1. A single rim sherd from a bowl ornamented with deep punctured dots was excavated at Erimi Pamboula (Dikaios 1962:121) and classified as "Punctured Ware". 2. There are probably more tombs in the vicinity, as suggested by a number of depressions resembling filled-in dromoi.

friable nature of the rock. The best preserved stomion is cut 0.7 m. below the rock surface and measures 1 m. wide by 0.90 m. high; it communicates with a circular chamber 1.50 m. in diameter. Cemetery B was obviously long since plundered and the pottery finds were predictably scarce. They included the following:

	sherds	%
R.P. Chalcolithic III ware	1	3.7
R.P. III Mot. ware?	24	89
Misc.	2	7
	27	99.7

The small size of the settlement permitted a comprehensive survey which resulted in the collection of 68 stone artifacts and 42 pieces of chipped stone, including debitage. Twenty-two stones were inventoried for the museum.

Axe	1
Chisel	1
Rubber-pounder	6
Grinder-pounder	4
Pounder	11
Pecking stone	5
Whetstone	2
Saddle quern No.1	3
Saddle quern No.2	33
Pendant	1
Phallus shaped object	1
	68

The ceramic assemblage from the settlement was the following:

	sherds	%
R.P. Chalcolithic III ware	8	4
Dark R.P. ware	43	21.5
R.P. III Mot. ware	50	25
Coarse ware	3	1.5
Misc.	96	48
	200	100
Misc. late	21	

The ratio between stone finds and pottery at Kamminoudhia is more balanced than at Erimi Kafkalla. That no gaming stones were found probably indicates none existed, but otherwise the lithic assemblage is typical of southwestern Cyprus. An apparently high dependence on chipped stone might be indicative of an earlier date, but could also be attributed to the lack of surface cover on a site which had been recently ploughed.

Presuming the settlement and Cemetery A are contemporary, a comparison between the 2 will emphasize the difference between the function of domestic and funerary wares. Of the 96 miscellaneous sherds from the settlement, most belonged to Dark R.P. or R.P. III Mottled ware, but not R.P. Chalcolithic III (Philia) which, even when weathered, retains its characteristic fabric. Hard and utilitarian, R.P. III Mottled is already in the ascendancy and will remain the most common pottery at all M.C. settlements. The significant lack of Blue Core ware places the ceramic assemblage apart from those of all other settlements in the region, and if the explanation is to be chronological, then Kaminoudhia represents the very beginning of the B.A. south of the Troodos.

PARAMALI MANDRA TOU POUPPOU

From the vicinity of Sotira we must shift our attention 6 km. west to the settlement and agregate of cemeteries bordering the upper reaches of the Paramali stream, about 130 m. above sea level.

The information received from a local shepherd on the existence of "taphoi" or "spilii" (tombs or caves), one kilometer or so north of the now abandoned Upper Paramali village, was received after completion of the K.S.U. survey. In order to present the most complete picture possible of the survey region, the results of a cursory investigation of the area will be presented here.

Mandra tou Pouppou[1] settlement occupies the sloping eastern flank of the valley from the encased bed of the perennial stream to half way up the ridge. The area is terraced and planted with carobs and olives, but has not been cultivated since 1974 at least, and is rapidly being overrun by lentics and spiny burnet. High ground surrounds the settlement on all sides, and other than easy access to the perennial stream,

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1. Mandra tou Pouppou is Greek Cypriot for "the doll's sheepfold". Map references: Cadastral Survey: LII:41, Plot nos. 4, 5, 9, 10, 25. Topographic series: 53. IXVII, 81300-40400.

the location offers no obvious advantages.

Occupation debris cover about 3 ha., and a singular lack of saddle querns and handstones suggests that terracing has either buried or totally removed most artifacts. Pottery, however, was quite abundant, as shown by the following table:

	sherds	%
R.P. III Mot. ware	9	20
R.P. IV ware	5	11
Bl. Core ware	7	15.5
Episkopi ware	6	13
Coarse ware	6	13
Misc.	12	26.6
	45	99.1
Misc. late	2	

Though small, the sample indicates that the period of occupation is contemporary with the end of the M.C.

The stone objects recorded include the following:

Saddle quern no. 2	1
Shallow mortar	3
Handstone (crude axe?)	1
	6

Cemeteries A, B[1] and C are loosely clustered about 250 m. north of the settlement. The chambers were dug into the soft chalk, and since the looters found it less time consuming to enter via the roof instead of the dromos, only in one instance could a complete plan be recovered. The dromos in question was quadrangular and measured 1.86 x 1.33 m.

A. Campbell discovered Cemeteries D and E on the opposite side of the valley, respectively 650 and 1000 m. north of the settlement. It is probable that these cemeteries served other, as yet undiscovered, M.C. establishments, for 650 or 1000 m. between necropolis and settlement is far greater than usual.

A minimum of 93 dromoi were counted on the east side of the valley, with a possible total of 20 to 30 opposite, which brings the total for the combined Mandra tou Pouppou cemeteries to well over 120.

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1. For an aerial view of the northernmost tombs of Cemetery B see fig. 83:2 - each dromos or chamber is indicated by an arrow →.

A non random sample of the pottery from Cemeteries A and B included the following wares:

	sherds	%
R.P. I South Coast ware	1	2
R.P. III ware	2	4
R.P. III Mot. ware	14	30
Bl. top bowl	1	2
R.P. IV ware	3	6.5
Bl. slip or Episkopi ware	1	2
Bl. Core ware	22	48
Misc.	2	4
	46	99.1

Cemeteries C and D produced a sample of R.P. III, R.P. III Mottled and one probable sherd of R.P. I South Coast.

There is every reason to believe that both cemeteries and settlement at Mandra tou Pouppou are contemporary.

EVDHIMOU SHILLES

The description of the site at Evdhimou Shilles[1] is undertaken with the same reservations as Paramali Mandra tou Pouppou, situated 3 km. to the northeast.

Investigation of the tombs led to the discovery of a large settlement nearby, covering much of a well defined south-sloping plateau. The pottery and stone scatter occupies about 15 ha. and terminates about 150 m.[2] short of the high eroded northern extremity of the feature, 67.5 m. above the sea. The settlement commands a fine view in all directions, especially towards the sea. Bedrock is either visible or covered with a thin deposit of soil, just sufficient to support the usual scatter of olive, carob and wild pistacio bushes. A series of low stone-filled terraces suggests the area was once intercropped with cereals.

Since there is no perennial stream in the area, the inhabitants must have relied on springs which used to exist 350 m. to the east, before

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1. The tombs were first located from the air by A. Campbell. Shilles may be translated as "dogs" in the Greek Cypriot dialect. Map references: Cadastral Survey: LII:64, Plot nos. 39-40. Topographic series: 52 XXXII, 38150-79750. 2. Occupation probably extended to the northern edge, but has now been lost to erosion.

recent changes in the water table due to the drilling of bore holes[1].

Two concentrations of looted <u>dromoi</u> are visible in the southeast edge (Cemetery A) and approximately in the centre of the plateau (Cemetery B). Cemetery A has been partially destroyed by modern agricultural terracing and 2 chambers remain visible in section. The larger measures 2.5 m. in diameter and still clearly shows the ancient tool-marks on the roof and edges. It would seem that a mattock-like object with a blade about 5 cm. across was used, leaving identical marks to those found at Phaneromeni Cemetery C.

Approximately 10 looted tombs were counted in the area, and where visible, the <u>dromoi</u> are of a rigorously quadrangular type measuring 85 x 93 cm., 90 x 95 cm.[2], or 1.40 x 1.00 m.[3].

Cemetery B had a minimum of 16 <u>dromoi</u>, and several partially cleared examples are quadrangular in plan.

Further north, the bedrock has been cut with a series of deep circular depressions of different sizes, 4 of which were joined by runnels. Nearby there are a few large stone blocks set at right angles to one another, and obviously the remains of some cohesive structure. Handstones, querns and pottery littered the area. The associated sherd sample is taken as typical of the settlement as a whole.

	sherds	%
R.P. III Mot. ware	18	14
Blue Core ware (including one B.R. type sherd)	35	27
R.P. IV ware	26	20
Misc.[4]	52	39
	131	100
Misc. late	5	

The high percentage of Blue Core in relation to the other wares is of note, and the R.P. IV sherds indicate that the site was occupied down to the end of M.C., as emphasized by the Blue Core sherd with B.R. affinities. The small number of miscellaneous late sherds suggests that the rock cuttings and architectural remains are of contemporaneous M.C. date.

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1. Note the toponym "Vrysi tou Kai" (Kai's spring) 500 m. northwest of the settlement. The existence of a spring here was not verified. 2. Top of the <u>stomion</u> 1.10 m. below surface of bedrock. At least 2 chambers. 3. Possibly 4 chambers. 4. The high percentage of miscellaneous sherds emphasizes the weathered and eroded state of the site.

Sixty two stone objects were noted, none of which were recorded for the museum.

Rubber-pounders	8
Rubbing stone	1
Pounder	2
Whetstone	1
Mortar	2
Saddle quern No. 1	10
Saddle quern No. 2	35
Gaming stone (Zenet No. 1)	3
	62

The pottery collected from Cemetery A includes the following wares:

	sherds	%
R.P. III ware	5	7.5
R.P. III Mot. ware	53	79
Blue Core ware	6	9
R.P. IV ware	2	3
Red on Black	1	1.5
	67	99.9

The occurrence of R.P. III at the cemetery but not at the settlement is typical of southern Cypriot sites where the harder and more durable fabrics of R.P. III Mottled, Blue Core and R.P. IV are generally preferred for domestic purposes.

The predominance of Blue Core and high percentage of R.P. IV was already noted at the settlement and suggests that these burials are later than the latest phase of the settlement. Imported pottery is always rare in the region, and the occurrence of a Red-on-Black sherd is of interest.

Two kilometers west of Shilles the small perennial Evdhimou stream was an important focal point during the Early and Middle Cypriot. During the summer months the streambed is dry for much of its length, and the B.A. settlement pattern within the valley suggests that then, as now, there existed an intermittent water supply.

Proceeding inland from the coast, the first sites encountered are Evdhimou Stympouli on the west bank and the large cemetery of Evdhimou Amolo lying opposite. Both sites are about 40 m. above sea level.

So far as can be ascertained, there is no archaeological record of Amolo or Stympouli. Over the years the necropoli of the area have

suffered extensively from looting[1], some of their contents ultimately reaching collectors and museums. Des Gagniers and Karageorghis published a number of pieces[2] reportedly from Anoyira, Evdhimou and Paramali, but their exact provenance remains unknown. The vessels might have been found at any one of the sites here described, and will not be discussed, since they all belong to diagnostic South Coast ceramic styles[3]. The present study is primarily concerned with material from specific sites, not from loosely defined areas; e.g. Anoyira or Evdhimou villages, which have several B.A. settlements within their boundaries. Had a broader interregional study had been intended, this category of material would then have been utilised.

EVDHIMOU STYMPOULI (fig. 76, 83:1)

Stympouli[4] is an impressive site, not because of location, but on account of the wealth of archaeological remains littering its surface. The sherd scatter covers at least 10 ha. of a flat low plateau overlooking the stream. The northern perimeter, studded with 58-odd dromoi, has been recently levelled and planted with vines. The discovery of a quern and a tethering block at the northeast edge of the terraced area suggests at least some occupation north of the cemetery. On the south and southeastern perimeter, the situation is the same: the rich top soil has been levelled, thereby destroying and scattering any archaeological remains that might have existed. A Mehen was discovered in one such field 40 m. southeast of the so called "house". To the west,

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1. Most of the looting took place when the areas were inaccessible to the control of the Government of Cyprus. 2. Des Gagniers and Karageorghis 1976, Pl. XXVI.2, XXX.2, XXXIII.3, XXXIV.1, XXX,1. 3. Had some of the pieces published by Des Gagniers and Karageorghis (1976) or Herscher (1976) been of a ware previously unrecorded in the region, then a detailed study to determine whether it was local or imported would have been required. 4. Stympouli may be a corruption of the Greek Cypriot word meaning "confluence of 2 streams". Map references: Cadastral Survey: LII:63. Plot nos. 166-169, 203-4, 206, 171-4, 199. Topographic series: 52/XXXI, 77750-37250.

the scatter of querns and pottery gradually ceases after some 500 m.[1].

The vegetation, typical for the region, and similar to that previously described at Kafkalla, grows on rather a poor chalky soil littered with stones. Those of an appropriate size for house building are probably the remains of wall foundations, since their local distribution corresponds exactly to that of the artifact scatter. In places the massive chalk bedrock outcrops, but it is generally covered with a good soil deposit. Though stony, the site was under cultivation until recently, but having lain fallow for several years it is now encroached upon by pistachio bushes, surrounded by a dense growth of wild grasses and thistles. Surface collection of pottery and small artifacts was difficult in these conditions.

The rich alluvium in the valley bottom, then, as now, would have been suitable for irrigated crops.

A disused irrigation ditch runs through the site providing an excellent section. At one point where the bedrock is 0.70 m. below the surface, it has cut into at least one structure (see figs. 76, 78). No architectural remains are visible on the surface, but one area, tentatively labelled as a "house" (see fig. 76), has an unusually high concentration of archaeological debris. In a square 20 x 20 m., 10 querns, a basin, 2 mortars, 8 handstones, a jar stopper, a Mehen and a Zenet were recorded. R.P. III Mottled and Coarse wares predominated. Forty meters to the south there is a single dromos containing a high proportion of "late" M.C. wares, probably the only representative of a larger group.

On the far side of the settlement, most of the 58 dromoi of the northern cemetery[2] communicated with multiple chambers. They are usually circular, or almost circular, with vertical edges, and conform in shape

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1. Although 150 m. upstream there is a year long flow of water, in the Stympouli area it disappears underground during the summer, and in the centre of the valley the water table is about 1.50 m. below the surface.
2. As previously noted the necropolis was partially destroyed by terracing, and a number of chambers are visible in the east-west section. The scarcity of sherds on the terraces suggests the cemetery did not extend much further north.

and size with the <u>dromoi</u> at Amolo Cemeteries A and B described below. Two bath shaped dromoi are exceptions, and resemble larger versions of the earlier type at <u>Amolo</u> Cemetery C.

In view of the recent disturbance of many chambers large numbers of sherds from the same vessel were collected, and the ceramic types listed here represent the minimum number of vessels recorded:

	vessels	%
R.P. I South Coast ware	1	3
R.P. III ware	13	39
R.P. III Mot. ware	11	33
Blue Core ware	8	24
	33	99

The percentage of R.P. III is unusually high. Of note is the absence of Episkopi ware and especially R.P. IV ware.

The necropolis, even in its present reduced state, is too small for a settlement of such importance and most of the burials must have been elsewhere. <u>Amolo</u>, only 200 m. distant, offered the ideal location: namely a long ridge and a small plateau of soft limestone (fig. 83:1). Both are mostly denuded of soil today, and their choice as cemeteries in antiquity may have been influenced by the same criteria.

Cemeteries A and C stretch along the ridge that runs northeast from the stream and gradually merges with the wide <u>Amolo</u> plateau, forming its steep eastern perimeter. Most of the bedrock along the southeast side of the ridge has been bulldozed in the course of terracing for vineyards, probably destroying numerous tombs. From the ridge the land slopes westwards, joining the eroded bluff of Cemetery B that overlooks the narrow valley. Though extensively reconnoitered, this side of the valley failed to produce any evidence of a settlement.

The main necropolis (A) with 172 <u>dromoi</u>, extends along the ridge for about 425 m.. The shape of the <u>dromos</u> is usually discernable but not the number of chambers; however, the evidence suggests that 4 was

the norm. Approximately circular or oval dromoi are most popular[1], followed by those of irregular shape, probably due to erosion of the bedrock. Rectangular and triangular shapes appear to be rare.

The ceramic assemblage from the cemetery includes the following:

	sherds	%
R.P. I South Coast	11	6
R.P. III ware	126	65
R.P. III Mot. ware	46	24
Blue Core ware	4	2.5
Misc.	3	1.5
	190	99

For the first time outside of Phaneromeni we encounter substantial quantities of R.P. I South Coast ware, but the volume of R.P. III ware is the main point of importance. It will have to be interpreted either as a regional characteristic or as a chronological distinction. The 3 unincised Episkopi Ware sherds are early, slightly dubius specimens. Blue Core ware is equally rare, and belongs to the earlier type.

A minimum of 70 dromoi was recorded to the west in Cemetery B, clustered on a small plateau which extends 80 m. south from a low east-west bluff. The ratios of shape and size are similar to those at Cemetery A, though one partially cleared dromos was an unusual 1.92 m. deep. Many gave access to 2 or 3 chambers, and the larger, circular dromoi probably had 4.

The Cemetery B pottery types are the following:

	sherds	%
R.P. I South Coast	5	3
R.P. III ware	68	37
R.P. III Mot. ware	76	41
Blue Core ware	23	12
Coarse ware	5	3
Misc.	8	4
	185	100
Misc. late	4	

The ratios of R.P. I South Coast and R.P. III are still high, but

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1. Average D. of circular dromoi: 1.70 m.. The largest recorded is 2.30 m. x 2.15 m., and the smallest is 1.45 m. x 1.35 m.. The sides are vertical, and the depth is always over 1 m., with a probable average of 1.60 m. Cf. Alatomi cemetery.

less so than R.P. III Mottled and Blue Core ware.

Finally, we come to Cemetery C at the southern tip of the ridge. Most of the 40 dromoi were filled with soil and no morphological features could be recorded, but on the crest of the ridge, there remained approximately 10 which were unobscured. The common type is a small D shaped dromos averaging 1.22 x 1.02 m. by 0.65 m. deep. Chambers of equally humble proportions, around 1.50 m. in diameter, were sunk below the straight end of the dromos (Fig. 79:2). A larger type (C4) with a chamber off both ends was recorded along with a single example (C3) measuring 1.50 x 1.47 m., that gave access to 4 chambers.

Broken pottery was abundant in the neighbourhood of the dromoi, and the following list represents the minimum number of vessels recorded, and not the total of sherds. If the sherd totals had been included the proportions of R.P. I South Coast and R.P. III wares would have further increased.

	vessels	%
R.P. I South Coast ware	28	36
R.P. III ware	29	38
R.P. III Mot. ware	12	15
Blue Core	2	3
Coarse	2	3
Misc.	3	4
	76	99
Misc. late	3	

The most obvious and interesting characteristic of the assemblage is the large percentage of incised R.P. I South Coast ware. Nowhere else, including Cemetery A, is this pottery so common or found in such varied shapes. Deep bowls are always rare, but 6 are recorded here, along with a brown polished bottle and a number of jars. More typical for Amolo is the high percentage of R.P. III ware, and by contrast R.P. III Mottled is poorly represented. The remains of 2 Blue Core vessels are probably intrusive, and might belong to C3, the large dromos below which they were found, for it contained much R.P. III Mottled ware. The

pottery and tomb morphology of C3 suggest it is contemporary with Cemetery B, therefore postdates the main burial period of Cemetery C.

The implications of these percentages from the 3 cemeteries at Amolo will be discussed in connection with relative chronology at the end of the chapter.

The size of Stympouli and abundance of ground cover precluded the systematic survey of the settlement. Selected areas were covered more thoroughly[1], but in the absence of typological or functional differences between the ceramic and lithic material from these areas it has been consolidated in the table to follow.

Eighty-three objects were recorded, 16 of these being catalogued for the museum.

Rubber-pounder	5
Rubbing-stone	2
Grinder-pounder	3
Pounder	1
Mortar	5
Mini mortar	1
Pedestal basin	6
Stone weight with suspension hole	2
Tethering stone (perforated)	6
Tethering stone with groove	1
Quern No. 1	18
Quern No. 2	18
Jar cover	1
Miscellaneous worked stones	4
Threshold	2
Gaming stone (Zenet)	6
Gaming stone (Mehen)	2
Flint core (not listed in table 7)	1
	84

In relation to the number of querns, mortars, tethering blocks and basins, there are very few handstones, particularly perforated hammers. At other sites the ratios are usually the opposite. This might be explained by a general lack of igneous rock in the area - almost all querns were of limestone - that resulted in handstones made of the softer material and easily confused with common fieldstones. Pedestal basins

1. The southeast section of No. 199, the southwest section of No. 169, the northern section of No. 173, and an area 20 x 20 m. around the "house".

are another unusual feature of the site, and nowhere else have they been recorded in such quantities. They suggest a degree of sophistication, an ability to exploit the available raw materials fully, which is not found at other sites.

The overall picture of the ceramic assemblage from the settlement is the following:

	sherds	%
R.P. III ware	8	5
Black top bowl	1	0.3
R.P. III Mot. ware	83	52
R.P. IV ware	3	2
Blue Core ware	29	18
Coarse ware	23	20
Misc.	4	2.5
	160	99.8
Misc. late	38	

Notwithstanding the differences that must exist between the pottery from domestic and funerary contexts, the material from Stympouli settlement compares best with that from its own cemetery and Amolo B. The percentages of R.P. III underlie that functional differentiation since this soft porous ware is far less suited for household use than R.P. III Mottled, R.P. IV or Blue Core ware.

EVDHIMOU ALATOMI (fig. 76, 83:1)

A small cemetery-settlement complex was discovered at Alatomi[1], a mere 250 m. north of Stympouli. The habitation area covers a maximum of 4 ha., stretching from a small rocky knoll overlooking the riverbank in the east, up the steep sides and on to the top of Alatomi plateau. Naturally protected on 3 sides by a scarp, the knoll now rises 12 m. above the stream. If required, it would have been ideal for a fortified position, but the soil cover is eroded and any architectural remains have vanished.

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1. Alatomi may be translated as "stone quarry". Map references: Cadastral Survey: LII:63, Plot nos. 24, 136-8, 148-9, 163-4. Topographic Series: 52/XXXI, 77750-37770.

The rim of the plateau has suffered less and is covered with occupational debris extending back for about 100 m. from the eastern edge. Here the remains are more sparse, but still sufficient to prove the area was inhabited. In places the exposed bedrock shows a number of mortar like depressions. The main concentration of these is a short distance from the edge of the plateau and consists of 9 straight-sided hollows arranged without pattern. The largest measures both 50 cm. in diameter and depth, and the smallest 25 cm. in diameter by 24 cm. deep. In their proximity to the cliff edge they are reminiscent of the mortars at Erimi Kafkalla.

An ample supply of water would have been provided by the stream, now clogged with brambles and reeds, and very sluggish. At the furthest point the settlement is 250 m. from, and 25 m. above the present water supply. With the addition of a few almond trees surrounding the knoll, the vegetation resembles that from Stympouli, and there is much arable land nearby.

One hundred and fifty metres to the south lies the cemetery with 19 visible dromoi. There are probably more in the vicinity, but fortunately they remain undetected, therefore unlooted. The dromoi at Amolo A and B, and Stympouli resemble those of Alatomi, where several were empty of debris and capable of being accurately recorded (fig. 79:1, 3). Five were straight sided, circular or oval affairs with an average diameter of 1.52 cm.[1], which led to 2, 3 or 4 chambers[2]. Another dromos (No. 2, fig. 79:1) measuring 1.80 x 1.90 m. was almost square with rounded corners, and had a chamber off each side. When visible, the top of the stomion is cut from 0.50 m. to 1.25 m. below the rock surface, which suggests dromoi are at least 1.50 m. deep[3].

In the Evdhimou valley the long, rectangular or irregular dromoi

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1. Dromos I is smaller than most and measured: 1.28 m. x 1.11 m.. It still contained 4 chambers however. 2. It was sometimes impossible to be sure of the exact number of chambers because of fill; 4 was probably the norm. 3. In this connection see the comments on the dromoi at Kafkalla p.255. Sometimes it was possible to measure the approximate diameter of the circular burial chambers by inserting a tape through the narrow gap between fill and roof.

favoured at Erimi Kafkalla and Phaneromeni are missing and their absence should be seen as a regional rather than a chronological variation, since these dromoi belong to the R.P. III Mottled horizon which is equally well represented in the Evdhimou valley.

The pottery collected at the cemetery is treated in the same way as that from Stympouli and the following list should be seen as incorporating the minimum number of vessels:

	vessels	%
R.P. III ware	10	14
Black top bowl	2	3
R.P. III Mot. ware	31	46
Blue Core ware	24	36
	67	99

The assemblage compares well with those from the cemeteries at Stympouli and Amolo B, though the ratios of R.P. III Mottled and Blue Core ware are slightly higher. This might suggest that Alatomi is slightly later in date, but only a little since not one R.P. IV ware sherd was discovered.

The area covered by the settlement is proportionate to the number of tombs recorded. Four hectares is small for the Evdhimou valley, and the site should be considered as an extension of the contemporary and more important establishment at Stympouli. Surface collection was hampered and distorted by erosion on the top of the plateau, and by modern terracing below. Fortunately the local dry stone walls - always rich in artifactural remains if such exist - supplemented the results of the survey.

Seventy-two stone objects were recorded, 8 being catalogued for the museum.

Rubber-pounder	4
Grinder-pounder	1
Pounder	5
Small mortar	2
Square mortar	2
Basin	1
Pedestal basin	2
Tethering stone	1

Miscellaneous worked stone	1
Pivot stone	1
Gaming stone (Zenet)	2
Gaming stone (Mehen)	1
Saddle quern No.1	13
Saddle quern No.2	36
	72

The ceramic assemblage from the settlement is the following:

	sherds	%
R.P. III ware	3	3
R.P. III Mot. ware	33	38
Episkopi ware?	2	2
Blue Core ware	22	25
Coarse ware	4	5
Misc.	23	26
	87	99
Misc. late	30	

The high percentage of miscellaneous is typical of a weathered, eroded site, and on the whole the assemblage is comparable to, and contemporary with, that from the cemetery.

On the opposite bank of the stream, 250 m. northeast of the knoll, there are several looted tombs in the locality of Kilades[1] (fig. 76). Only 3 chambers were noted on the narrow, heavily terraced ridge, once the location of a ruined village[2]. A number of vessels and sherds, including an R.P. III Mottled askos, a Blue Core spouted jug and a Blue Core amphoriskos rim with anthropomorphic decoration, were handed to the Limassol Museum after the chance discovery of a tomb[3]. With no evidence for a settlement on this side of the stream it seems likely that the necropolis was associated with the Alatomi settlement.

In the Limassol Museum there is a tomb-group of 5 bowls and a concial spindle whorl discovered during levelling operations at Evdhimou Kilindri[4] locality. The Cadastral Plan fails to show a locality by this

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1. Kilades means "little valleys" in Greek. 2. The area was so disturbed that a systematic survey was judged unnecessary. One R.P. I South Coast sherd was collected in addition to R.P. III, R.P. III Mottled and Blue Core ware. 3. Karageorghis 1969:486, fig.113, published the askos. The material, registered as LM RR 452 included R.P. III sherds and a fragment of an undecorated Black Top bowl. There is little doubt that this material came from the same site. Karageorghis 1976b:851 fig.19 (R.P. III Mottled spouted jug), fig.20 (R.P. I South Coast deep bowl) published several vessels supposedly from Evdhimou Kilades (C.S. 2251), but according to the records in the Cyprus Survey they originated from Evdhimou Beyouk Tarla. See p. 288. 4. Cf. Cyprus Museum records: MP27/51 B1.1.

name, but the alternative form? of Kylindria or Jylindria is an area only 400 m. north of Kilades. That no worked stones or B.A. pottery were recorded here by the survey, suggests that the finds might have originated from Kilades.

EVDHIMOU AMBELOVOUNOS

The next B.A. community in the valley is that of Evdhimou Ambelovounos[1] 400 m. northwest of the village and 2.5 km. inland from Alatomi. The site was discovered towards the end of the survey and time did not permit the systematic recording of all features, including the settlement boundaries. A dozen or more partially obscured dromoi surrounded the flat-topped hill (spot height 125 m.) 150 m. long by 40 m. wide, that overlooks the narrow valley and commands an uninterrupted view of the coastline from Akrotiri to Pissouri. It is typical of southern Cyprus in the E.C.- M.C. that such a position of obvious defensive potential was not utilized. The settlement lay 20 m. down the slope, near the stream bed, where 3 Type 1, 1 Type 2 querns, a rubber pounder and a number of R.P. III Mottled sherds were recorded. Another Type 1 quern and a large mortar were noted 200 m. to the northwest.

The sherd scatter at the north end of the cemetery consisted of R.P. III, R.P. III Mottled and Blue Core ware, but a large, rich and quite recently[2] looted tomb on the southern flank, contained a high proportion of R.P. I South Coast, R.P. III, R.P. III Mottled and 2 sherds of Blue Core ware. The paucity of Blue Core is of note as hundreds of sherds surrounded the gutted chamber. There is no doubt, for once, that all the material came from the same tomb, as no others were found nearby.

The following sherds were collected:

R.P. I South Coast ware	15
R.P. III Mot. ware	19
Blue Core ware	2

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1. Ambelovounos means "hill vineyard" in Greek. Map references: Topographic Series 52/XXXI 77650-39800. 2. The looting probably took place prior to 1974.

EVDHIMOU BEYOUK TARLA (figs. 77, 82:2)

Only 500 m. north of Ambelovounos, on the opposite side of the small river gorge which forms the western branch of the valley north of Evdhimou village, there is the broad plateau of Beyouk Tarla[1]. Well defined on the western perimeter by the gorge with its perennial water supply, it was chosen for the largest pre-L.B.A. settlement south of the Troodos massif. To the east the occupation phases out in a shallow gulley 350 m. from the stream bank; the north and south perimeters being unassociated with any geophysical features are less obvious, and after a span of 650 m. sherds become rare, then disappear completely. The area so defined covers a minimum of 17.5 ha.

The settlement, at the closest, is 50 m. from, and 20 m. above the stream; at the farthest point the distance is 400 m.. Access to water, however, would have been easier in the B.A. since erosion has no doubt increased both the depth and the sheerness of the stream banks.

The southern, lower, end of the site is 130 m. above sea level; from here it rises in a series of low broad terraces to 160 m. at the northern boundary. The east and west sides of the plateau are heavily terraced. Vegetation is typical of that encountered on previous sites, and the light chalky soil was until recently ploughed for cereals. Today dry farming alone is practiced in the area, but the higher level of the stream bed in B.A. times would have permitted some irrigation in the valley bottom.

In few places does the bedrock appear on the plateau, and from the depth of deposit noted above burial chambers a soil cover of about 1.50 m. would seem typical. The thick deposit probably explains the lack of visible dromoi: either intentionally or by natural agency, most of them have been back-filled and are only discernible as shallow craters covered

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1. Beyouk Tarla is Turkish for "large arable field". Map references: Cadastral Plan: LII:47, Plot nos. 71-91; Topographical Series: 52/XXIII, 38450-47750.

with sherds. No complete plans were possible although nearly 10 dromoi were recognised as belonging to the sub-rectangular class. One such communicated with 2 chambers. Unlike the sites previously discussed whose burial patterns consist of large tomb clusters, at Beyouk Tarla there were 2 main concentrations, one in the southeast, the other in the west, and a random scatter in between (see plan).

The site was discovered in the mid-60's when a water pipe was laid through the middle of the southeast cemetery. Neither the spoil heaps nor the dromoi have that compacted or weathered appearance typical of old disturbances. Two Blue Core amphorae from the site, known initially as Evdhimou Kannovokambos[1], were published in 1968 by Karageorghis[2], and the next reference is in Swiny 1976[3]. Additional material, mostly consisting of Blue Core jugs confiscated by the police in Evdhimou, might have come from Beyouk Tarla, though the other cemeteries surrounding the village - Ambelovounos, Amolo B, Stympouli and Alatomi - offer equal possibilities.

Forty-three individual dromoi were plotted, representing a minimum number, and as previously mentioned they provided little data on tomb morphology. The southeast cemetery in particular (Plot 84, fig. 77), was littered with doorslabs and neat piles of fieldstones mingled with sherds. Each pile represents the debris from a back-filled chamber.

Since the sherd material failed to exhibit any chronological or typological differentiation between the various burial grounds, it has,

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1. The Cadastral Survey sheets and the Topographic (1/5.000 series) maps show Kannavokambos as a locality 2 km. north of Beyouk Tarla. The confusion probably arose from the member of the Department of Antiquities being misinformed when the site was first visited. On both Cadastral Plans and the Topographic maps, the area is labelled as Beyouk Tarla. The site is recorded in the Curium House Museum as Kannavokambos.
2. Karageorghis 1968:292, fig. 70-71. 3. Swiny 1976:55. The Cyprus Survey has 2 entries under Evdhimou Beyouk Tarla. The first, C.S. 2070, consists of R.P. III Mottled, Blue Core and R.P. IV sherds, an assemblage typical of that recovered by the K.S.U. survey. The second entry, C.S. 2251, nos. 1-15, is a miscellaneous assortment of R.P. I South Coast deep bowls, R.P. III, R.P. III Mottled, etc. vessels recovered from a house in Evdhimou village after 1974, and published by Karageorghis 1976b:851 (see p. 285).

therefore, been consolidated in the following table which represents the minimum number of vessels.

	vessels	%
Black top bowl	14	5
R.P. III ware	36	13
R.P. III Mot. ware	112	40
R.P. IV ware	24	9
Episkopi ware?	1	0.3
Blue Core ware	72	26
Coarse ware	5	2
Misc.	11	4
	274	99.3
Misc. late	6	

R.P. I South Coast ware is quite lacking, and the main point of interest is the large number of Black Top bowls - 3 of them incised. There must have been a predilection for this type - typologically akin to R.P. I (fabric and decoration) and III (fabric) - which is rare elsewhere. The joint occurrence of R.P. III and IV is unusual, and suggests a protracted lifespan for the cemetery. The pottery indicates that the cemeteries of Alatomi and Beyouk Tarla were first used at the same time, and that the latter with a small percentage of R.P. IV ware, existed slightly longer.

No architectural remains are visible on the plateau, indeed the contrary would be surprising in an area so intensely landscaped by terracing. There is hope, nevertheless, that the thick soil deposit might have preserved some undisturbed structures.

In the southeast corner of the site, Plot No. 76 has been recently levelled and now forms a broad terrace with a neatly cut section some 60 m. long and 2 m. high on the uphill side. The soft chalk bedrock is covered with a soil deposit nearly a metre thick, which shows a number of anomalies. At 2 m. from the northern end, 4 courses of a dry stone wall, .50 m. high, protrude diagonally from the bank. Twenty metres further south, a second wall of 3 courses shows up, followed at 29 m. by yet another stretch 1.10 m. long and 3 courses high, running parallel to

the section. At the far southern end of the section, an almost random accumulation of large blocks might be the remains of a more substantial structure.

The walls are built on, or just above bedrock, and may be loosely dated to the M.C. by the stratified pottery:

	sherds
R.P. III ware	3
R.P. III Mot. ware	10
Episkopi ware	3
Blue Core ware	3
Misc.	2

A number of miscellaneous wheel-made sherds were collected from the soil accumulation above the walls.

The implications of these finds are clear; following a pattern previously noted at Phaneromeni and Stympouli, we have here the remains of a single period occupation set on bedrock.

One hundred and fifty one stone objects and 1 terracotta were recorded from the large settlement area, 59 being catalogued for the museum. Random sampling procedures would have been an efficient means of studying the density of habitation in various sectors, but time did not permit the implementation of such techniques. In order to determine the extent of occupation, our work was concentrated on the peripheral areas, north and south especially, with less attention being paid to the central zone. Had a total surface survey been undertaken, hundreds of artifacts would have been recorded.

Axe No. 1	2
Rubber-pounder	16
Grinder-pounder	2
Pounder	12
Pecking stone	4
Mortar (small)	6
Trough, basin	5
Trough with runnel (large)	1
Rectangular basin	3
Runnel, spout	3
Pedestal basin	1
Weight with suspension hole	2
Saddle quern No. 1	27
Saddle quern No. 2	29
Jar stopper	1

Pivot stone	3
Tethering stone	8
Carved stone (ship?)	1
Phallus?	1
Gaming stone (Zenet) No. 1	17
Gaming stone (Zenet) No. 2	6
Gaming stone (Mehen)	1
	151

The range of stone artifacts is typical for the period. It is of note that for the 23 Zenets only one Mehen was recorded. This again emphasizes the rarity of the game in relation to Zenet, following a pattern already noticed at Phaneromeni, Stympouli, and Alatomi. No perforated stone hammers were collected, and this observation cannot be attributed solely to the lack of a totally systematic survey. Perforated hammers are the most easily recognised of all small stone artifacts, therefore, the collectors bias is usually in their favour. At best they must have been very rare at the site.

The ceramic assemblage from the settlement is the following:

	sherds	No.
R.P. III ware	4	2
R.P. III Mot. ware	94	43
R.P. IV ware	22	10
Episkopi ware?	4	2
Blue Core ware	24	11
Coarse ware	45	21
Misc.	24	11
	217	100
Misc. late	82	

The ceramic percentages indicate that the settlement is broadly contemporary with the tombs which span the M.C.. An occupation for this length of time would necessarily result in an accumulation of debris, unless the settled areas were constantly shifting within the confines of the plateau. The first assumption would result in a greater percentage of the later wares - Blue Core, R.P. IV - being on, or near, the surface throughout the settlement; whereas the second would show a differential sherd scatter. Unfortunately the tables have no recognisable variations and the percentages of the main wares - R.P. III Mottled, R.P. IV, Blue Core - remain constant throughout the site. Deep ploughing and terracing

seem to have destroyed the evidence.

Two concentrations of M.C. sherds and stone artifacts were recorded outside the settlement boundaries, 150 and 400 m. to the east. The former consisted of 3 large tethering stones, which could hardly have been transported any great distance, several querns and a number of R.P. III Mottled and Blue Core coarse ware sherds. The other site was found quite by accident following the discovery of a single Zenet on the edge of a small terraced depression. Further investigation revealed a few Blue Core coarse ware sherds nearby.

These isolated finds appear to be the remains of farmsteads or small family (?) units living outside the periphery of the settlement. The implications of such settlement patterns will be discussed more fully in the conclusion, but if the inhabitants felt safe enough to reside outside the main concentration of dwellings, it does imply that security and stability prevailed in the region.

ANOYIRA TRAPEZI

One and a half km. northwest of Beyouk Tarla on the opposite side of the stream the long sloping table-top plateau of Trapezi dominates the valley[1]. It is here that Dikaios excavated a Philia Culture (Chalcolithic III) grave containing several intact and fragmentary vessels[2]. Nothing more was known of the site[3]. A careful survey along the top and sides of the plateau failed to produce any substantial new evidence: no telltale debris of B.A. occupation, not a single quern or handstone, and only 8 diagnostic sherds, all of which could be intrusive[4]. At 185 m. from the northern end, there are the remains of an enigmatic

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1. Trapezi means "table" in Greek. Map references: Topographic Series: 52/XXIII, 76150-41920. 2. Dikaios 1961a:14. 3. Catling 1963:149, lists the site as E.C. no. 13, and gives a reference (MP33/37) to notes in the Cyprus Museum files. Unfortunately these are no longer available for study, though the tomb group, recorded as RR1619, remains in the Nicosia Museum. 4. We were assisted by the landowner who remembered that a tomb had been excavated below the southern end of the plateau, but was unable to show us the exact spot.

structure made from 5 large blocks of unhewn limestone (Fig. 84). It now resembles a U with the opening facing the sea. The original arrangement, however, probably formed a square, for the southern block appears to have toppled inwards[1]. In the absence of pottery no date can be suggested, though the M.B.A. is a possibility in the light of discoveries from Peralijithias. Approximately 200 m. further southeast the eroded foundations of a quadrangular structure were recognised on a low prominence shown as Athanaros on the map[2]. All vegetation in the area has been recently burnt, which favours sherd collection, but even so the assemblage was so small and weathered that no date could be suggested.

Several R.P. sherds were collected on the plateau's southwest slope. Concentrated in a small area, they apparently belong to the same medium sized (H. ca. 30 cm.) closed vessel, identical in fabric and surface treatment to the Dark R.P. bowls from Kaminoudhia. Dikaios' Chalcolithic III tomb was probably in this general area, but no evidence of a necropolis could be found. The results of his excavation are of the greatest interest, and it is unfortunate that no contextual evidence is available. It would be useful to know the shape and size of dromos - if such existed - and whether any osteological remains were found.

The grave goods consist of a large storage jar, a knob lug bowl, a fragmentary jug and the handle of a coarse ware cooking pot[3].

1a. Storage jar. Fig. 70:1a. Intact. H. 55 cm., D. rim 19 cm., D. base 12.5 cm.
Very hard, coarse dark-brown grit tempered fabric with many large black inclusions. Grey core, brown on outside. Thin brown, slightly lustrous slip, with vertical burnish marks clearly visible. One lighter patch, otherwise uniform brown. Ovoid body with wide flaring rim, worn smooth and flat on the upper edge[4].

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1. Map reference: 7608-4193. 2. The long east-west axis is 12 m., with a width of 7 m. Only one course of the dry stone foundations are visible: they measure between 0.50 m. and 0.67 m. wide. Map reference: Topographic spot height 272 m. 3. The material is labelled as: 1944-V-19, RR1619. 4. A similar wear pattern was recognised on the rims of several pithoi at Phaneromeni Settlement A, and was caused, I believe, by the use of a hard flat cover. Comparison may be drawn with the contemporary Cypriot practice of covering storage jars with heavy stone slabs. These may still be purchased in Limassol town.

The fabric does correspond to Stewart's definition of R.P. I (Philia) Coarse Ware: "gritty . . . dark brown washed or smoothed surface" (Stewart 1962:224), though the description is vague enough to fit a number of wares. Both fabric and surface treatment classify this jar as a good example of Dark R.P. ware, as defined at Kaminoudhia (No. 2).

There are no parallels for this shape of storage jar without handles or lugs. Its proportions resemble those of the Red Slip amphora with 2 vertical lugs from Philia Vasiliko (Dikaios 1962, Fig. 82:29). No R.P. I jars from the north coast are the least similar, since all have 2 vertical handles from shoulder to neck. The relief decoration is also unusual. Crescents are known in the repertoire of relief decoration (Stewart 1962, Fig. LXXXIV:6), which is mainly restricted to R.P. III wares. Stewart mentions the existence (Op. cit:226), however rare, of plastic ornamentation on Chalcolithic III pottery. Only 3 pieces have been published: 2 R.P. jugs from Kyra-Alonia[1] with 2 relief strips on the upper handles and an R.P. spouted jug from Philia Vasiliko[2] with a relief button on the neck.

1b. Cooking pot. Fragmentary.
The Cyprus Museum records mention a "round base cooking pot, 12.5 cm. high, with 2 vertical handles". No vessel of this description was stored with the material from Trapezi, but a single vertical handle made of coarse dark-brown fabric with a light burnish, was found inside the jar 1a. This probably belongs to the cooking pot described above.

The mention of a round base is unexpected, since this feature is rare in the Chalcolithic III- E.C. I repertory of shapes. The only representative of the former period[3] has very thick handles and body, and a flat base: the R.P. I examples[4] are of similar shape and equally massive. Even with our present incomplete knowledge of the period, 1b stands out as an oddity.

1c. Jug. Fig. 70:1c. Fragmentary. H. (pres) 19 cm.. Rim and base

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1. Dikaios 1962, Fig. 72:13, 15. This is the earliest Chalcolithic III site known. 2. Op. cit. Fig. 80:11. This material is typologically more evolved than that from Kyra-Alonia. 3. Op. cit. Fig. 83:21.
4. Stewart 1962, Fig. CXXI:1-9.

missing. Soft chalky fine grit tempered fabric, with a grey core. Thick red/brown slip with vertical stroke burnishing from below the shoulder. Vertical handle, round in section, from shoulder to neck. This piece without diagnostic features such as rim and base, is of little comparative value, but the visible burnish marks and soft chalky fabric indicate it belongs to the R.P. Chalcolithic III category (No. 1 at Kaminoudhia).

The ill defined, sloping juncture between shoulder and neck is a typical feature of Chalcolithic III and early R.P. jugs[1] and juglets, but is not found later in the sequence. None of the R.P. III and R.P. III Mottled jugs from the tombs excavated at Phaneromeni had this shape, but the jug (T1/2) from Kaminoudhia was identical. Typologically then, this piece belongs to the earliest form of R.P. jugs.

1d. Bowl. Fig. 70:1d. Intact. H. 12.6 cm., D. 15 cm., D. (base) 7 cm. Soft chalky fine grit tempered fabric, with a buff core except near the black interior. The fabric is slightly harder than 1c, but softer than typical Philia Vasiliko ware. Thick red-brown slip with obvious vertical stroke burnishing. A single vertical lug with horizontal piercing, rises slightly above the rim. Flat base. R.P. III Chalcolithic III as 1c above.

There is no prototype for this shape in Chalcolithic III. A number of stroke-burnished bowls from Philia Vasiliko[2] and Ayia Paraskevi[3] and an R.P. bowl from Vasilia[4] certainly belong to the same type, for which there is no E.C. successor.

Studied as a group the vessels from Trapezi fail, with one exception, to provide any comparisons with those from the cemeteries at Phaneromeni. The flat bases alone are significant, as well as a rather superficial and probably meaningless fabric resemblance between the storage jar 1a and R.P. III Mottled. The proximity of the 2 sites should diminuish the possibility of regional variation accounting for the differences, which must then be chronological. Apart from flat bases, all the comparisons are with Chalcolithic III or E.C. I material, and there is little doubt that Dikaios' original date is correct, and that Kaminoudhia and Trapezi

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1. Dikaios 1962, Fig. 81:5, 6 and especially 8, 22-26. All from Philia Vasiliko. For R.P. I jugs and juglets with similar shapes cf. Stewart 1962, Fig. LXXIV:4, 6, 7, 12, and especially LXXXLV:11. For typical R.P. III jugs and juglets see Fig. LXXX-LXXXIX. 2. Dikaios, 1962:172, Fig. 83: 1-5, describes this pottery as Band Burnished Ware. 3. Stewart 1962, Fig. CLI:1-4. 4. Op. cit. CXXXI:50.

are indeed contemporary.

ANOYIRA KANNAVOKAMBOS (fig. 82:3)

The B.A. cemetery of Kannavokambos[1] is close by the road heading north from Evdhimou on the steep southern bluff of the Anoyira plateau. Watered by a spring farther up the hill, it is also an ideal location for a settlement that might wish control the movement of goods and people within the valley. But the only evidence for habitation on the extensively terraced slope was a saddle quern and a pounder found between the cemetery and the spring.

The weathered appearance of the looted tombs suggests the necropolis has been known for a long time. Of the 34 dromoi scattered in an area 55 x 20 m., only 6 were clearly defined. They are generally quadrangular in shape, versus round or oval at Alatomi and Stympouli, and the average size of 5 specimens was 1.95 x 1.42 m. with the minimum depth ranging from 0.70 m. to 1.20 m... Most dromoi were filled with debris, making it impossible to determine the number of chambers - though in one instance at least 2 were recorded.

The following sherds were collected:

	sherds	%
Dark R.P. ware	13?	14.5
R.P. I ware	1	1
R.P. III	35	39.5
R.P. III Mot. ware	3	3
R.P. IV ware	1	1
Blue Core ware	9	10
Misc.	27	30
	89	99
Misc. late	18	

This is an interesting assemblage with R.P. III Mottled ware only represented by 3 sherds of indifferent quality. Dark R.P. ware is quite

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1. R.P. III, R.P. III Mottled and Blue Core sherds in the Survey Museum, labelled as C.S. 1837, Anoyira Kannvovounos, probably come from this site as no such locality name could be found on the Anoyira village Cadastral Plans. Kannavovounos (the hemp hill) is probably a mis-spelling for Kannavokambos (the hemp field) in Greek.

common and offers a close parallel with Trapezi only a few hundred yards distant. The single R.P. I South Coast sherd is the only example of its type north of Evdhimou Ambelovounos, and further supports an early date for the first burials. Several Blue Core ware sherds and the single R.P. IV ware incised sherd are the latest finds from the cemetery, which has remained in use throughout the E.C. and M.C. periods.

Set amongst the foothills of the south flank of the Troodos range, Anoyira village commands a fine view of coast and mountains alike. It was in this area of table-land dissected by eroded gullies and perennial streams that the M.B.A. settlers established several important communities. The combination of water, arable land and light forest cover had already attracted the Neolithic and Chalcolithic peoples, in a prelude to the expansion of the M.C. communities.

Several of occupation sites were established near the village, from Livadhia in the south to Kambos in the northwest, via Kolokos, Ayios Ioannis and Peralijithias.

ANOYIRA LIVADHIA

Directly south of the village, the localities of Katalatsia and Livadhia[1] have recently been levelled for viticulture which resulted in the discovery of much B.A. material. The dry stone walls surrounding the vineyards often contain handstones, saddle querns, even a few gaming stones, and the fields are littered with sherds.

The settlement, as determined by the pottery scatter, covers about 5 ha., extending down the gentle south-sloping hill of Katalatsia and rising again at Livadhia towards Ayia Varvara in the south. Nowhere is the perimeter defined by prominent natural features, and unlike many M.C. settlements which command an excellent view of the surrounding countryside,

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1. Livadhia may be translated as "meadows", which presupposes an adequate water supply, since all meadows in Cyprus must be irrigated. Map references: Cadastral Plan: LII:30, Plot nos. 179-184, 404-409, 418; Topographic Series: 52/XIV, 75900-43950.

Katalatsia-Livadhia was almost hidden in the bottom of the valley. The lowest point is about 430 m. above the sea.

No natural water source exists in the vicinity, and the closest springs are in the next valley, 400 m. to the east. These, however, would probably have been within the territorial boundaries of the settlement at Kolokos, which in any case probably merges with Livadhia.

According to the local information a number of "cavities" appeared during levelling operations on the boundary between Livadhia and Kolokos. Obviously, these were the tombs where the inhabitants of Livadhia buried their dead, and the pottery scatter in their general vicinity suggests they belonged to the R.P. III Mottled-Blue Core tradition. There were reports of another cemetery to the south of Ayia Varvara, but its date remains uncertain.

A recently levelled terrace at Katalatsia (No. 180), was scattered with newly broken M.C. pottery and lithic artifacts. The western end, between 0.70 and 1.60 m. lower than the adjoining field, provides an excellent north-south section 39 m. in length. From bedrock to the disturbed top-soil, there is about 80 cm. of stratified occupational debris - sherds, bone, stone artifacts[1] and possibly a wall. The level may be dated by the associated sherd material which comprises the following:

	sherds
R.P. III Mot. ware	4
R.P. IV ware	3
Episkopi ware?	1
Blue Core ware	4
Misc.	4

The presence of R.P. IV ware suggests that the settlement, in this area of Livadhia at least, is later than that recorded at Beyouk Tarla and approximately contemporary with Phaneromeni A. A further indication of the synchronism is provided by 1 unstratified Episkopi ware incised ?[2] sherd, to date the only occurrence of this type west of Phaneromeni.

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1. One No. 2 quern and a rubber-pounder were noted in the section, just above the chalk bedrock, and a pottery roundel (jar stopper-Liv. TC 2) was collected with the stratified sherds. 2. After completion of this chapter, 2 diagnostic incised Episkopi ware sherds were noted in the fill from a looted tomb at Cemetery C, Paramali Mandra tou Pouppou.

The large and varied lithic assemblage from Livadhia contained 81 objects, 36 of which were collected for the museum. Plot 180 had the greatest concentration of stone and pottery, including 3 terracottas[1].

Axe No.1?	1
Axe No.3	1
Axe No.4	1
Rubber-pounder	11
Grinder-pounder	1
Pounder	8
Pecking stone	1
Whetstone	1
Perforated stone (hammer)	3
Weight	1
Jar cover?	1
Mortar	1
Large stone basin	1
Pecked depression	1
Saddle quern No.1	12
Saddle quern No.2	32
Gaming stone No.1 (Zenet)	3
Gaming stone No.2 (Zenet)	1
	81

Since the pottery ratios of different wares are nearly constant throughout the site, they have been amalgamated in the following table:

	sherds	%
R.P. III ware	16	8
R.P. III Mot. ware	59	31
R.P. IV ware	14	7
Episkopi ware	3	2
Blue Core ware	63	33
Coarse ware	22	12
Misc.	12	6
	189	99
Misc. late	86	

The almost equal proportions of R.P. III and IV ware suggest that the settlement was occupied for a considerable time, since Phaneromeni A has proved they are not contemporaneous. Unfortunately, the only section available for the site (No.180) failed to provide any evidence for stratification. Maybe, as previously suggested for Beyouk Tarla, the inhabitants were constantly shifting their dwellings within the confines of the settlement.

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1. These consist of a fragmentary spindle whorl, a griddle? fragment with a basket impression and a pottery roundel: Liv. TC 1, 2 and 3.

ANOYIRA KOLOKOS

Archaeological remains were recorded a short distance east and south of Livadhia, at the locality of Kolokos[1]. The site was established in a narrow, well watered[2] valley whose configuration has been so thoroughly altered by recent terracing that it is impossible to make any comments as to the nature and size of the M.C. settlement. A few sherds and artifacts were discovered along the western perimeter of Kolokos, amongst the stone piles cleared from the site. Such pottery as was collected belongs to the following types:

	sherds	%
R.P. III ware	1	5
R.P. III Mot. ware	4	20
R.P. IV ware	2	10
Blue Core ware	5	25
Coarse ware	8	40
	20	100
Misc. late	8	

The assemblage suggests the settlement was contemporary with Livadhia.

Other finds were rare, and not specifically diagnostic of any given period. They consist of 5 Type 1, 7 Type 2 saddle querns, and a tethering stone.

A M.C. cemetery is recorded[3] a short distance southeast of Kolokos at the locality of Stavlismi. This is probably the main necropolis for Kolokos, and following the usual E.C.- M.C. pattern we find both settlement and cemetery in close proximity.

On the hill overlooking Kolokos to the east, there are the remains of a small chapel, known as Ayios Ioannis[4]. The area was probably

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1. Kolokos may be translated from Greek as "marrow fields", Kolochi meaning vegetable marrow. Map references: Cadastral Plan: LII:31, Plot no. 105; Topographic Series: 52/XV, 76300-43800. 2. There are a number of springs in the valley, and elsewhere the water table is very near to the surface. 3. The site is recorded in the Cyprus Survey as C.S. 2419. From here came a large (H. 47 cm.) R.P. III Mottled jug with cut away spout and relief decoration on the neck. 4. A concentration of slag and secondary gossen on the north side of the chapel is a discovery of importance. The slag resembles the dark so-called "Roman" type with distinct flow patterns, and the associated pottery is Roman to Byzantine in date. If smelting took place here, there was surely a mineralised zone nearby, and it is not impossible that the concentration of M.C. settlements in the area was associated with metallurgical operations. No other slag is known in the vicinity.

inhabited at least since the Chalcolithic period, as suggested by the discovery of 3 stone axes and an adze in the fields surrounding the ruin. Two Zenets and a Type 2a terracotta spindle whorl were also found. Their presence could be explained by the existence of a path linking Livadhia-Kolokos with Peralijithias, which would have to pass through the area.

ANOYIRA PERALIJITHIAS (fig. 80, 82:4)

Peralijithias[1], the easternmost site of the Anoyira group, would easily have been overlooked were it not for the rich finds attributed to its cemetery. By comparison with Beyouk Tarla, Stympouli and Kafkalla, the spread of occupation debris is small - 7.5 ha. at the most - and there is no telltale scatter of plundered tombs.

In common with other settlements the site location is a high broad plateau, tilted south, about 400 m. above sea level. It commands an excellent view of the coast and is naturally protected on 3 sides; only to the north is it accessible. The bedrock is visible in places, protruding from a generally meagre chalky soil, with a few richer pockets of kokkinokhoma. Towards the centre of the site, wide terraces are planted with vines or sown with an annual crop of cereals. The plateau, and indeed the whole region, has a good cover of carob and olive, while the more rocky areas are taken over by pistachio and spiny burnet.

To the east of Peralijithias the sheer, 100 m. deep, Evdhimou river gorge remains a perennial water supply. Of difficult access and too narrow for agricultural use, it cannot have been a determining factor in the location of the site. The source of water in days of greater (?) rainfall and heavier forest cover, was certainly the small spring in the ravine on the western perimeter. At the closest it is 50 m. and at the

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1. The Greek placename of Peralijithias may be translated as "distant valleys". Map references: Cadastral Plan: LII:31, Plot no. 219; Topographic Series: 52/XV, 77350-44150.

farthest 400 m. from any part of the settlement.

An intensive surface survey revealed that only the centre of the plateau - or an area about 300 m. north-south and 250 m. east-west - was occupied in the B.A.

No tombs are visible today, but the landowner indicated several areas (Tombs 1, 2, 3, 4, 5; fig. 80) where burials had been discovered, especially during levelling operations for the vineyard. A concentration of large R.P. III Mottled sherds, labelled as Tomb 3, suggests that several burials were located here. A number of widely scattered, partially obscured, cuts in the bedrock or depressions in the ground might be associated with tombs, but since their interpretation is open to question they are not marked on the plan.

The funerary arrangements were apparently typical of the period. The graves with R.P. III Mottled ware and metal finds were concentrated near Tomb 5, whereas Blue Core and R.P. IV are restricted to the vineyard and the vicinity of Tomb 1. Burials of each type, however, were not exclusive to these areas, since Tombs 2 and 3, close by the vineyard, did contain R.P. III Mottled ware.

Although most contextual and all stratigraphic evidence is lost, we are fortunate enough to have a sizeable quantity of accurately provenanced, well preserved grave goods[1]. The largest collection west of Phaneromeni, it serves as a useful comparison with the great body of material from Limassol and Pyrgos to the east. The metal objects and terracottas have been dealt with in their specific chapters, therefore the detailed description is limited to pottery.

619/58. R.P. III Mottled ware bowl. Fig. 85. Intact. H. 17.5 cm., D. 46 cm.
Hard, coarse light brown grit tempered fabric; red-brown slightly lustrous slip with darker mottling. Flat base, hemispherical body, 2 horizontal loop handles below rim; horizontal ledge lug on rim with incised diagonal lines.

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1. All the material from Anoyira Peralijithias stored in the Limassol Museum is catalogued as LM RR 619/1, 2 etc.; hereafter: 619/1, 2 etc.

619/59. R.P. III Mottled ware bowl. Fig.85. Rim chipped. H. 9.4 cm., D. 14.3 cm.
Hard, brown grit tempered fabric; mottled brown-red, lightly burnished slip. Hemispherical body, incurving rim, ompholos base, D. 1.5 cm., horizontal ledge lug at rim, with 2 groups of diagonal incisions.

619/60. R.P. III Mottled ware bowl. Fig.85. Fragmentary. H. 7.1 cm., D. 11 cm.
Hard, brown grit tempered fabric; mottled brown-red lightly burnished slip. Hemispherical body, incurving rim, slight ompholos base.

619/39. R.P. III Mottled ware jug. Fig.85. Intact. H. 44.5 cm., D. 31 cm.
Hard, grit tempered brown fabric; thickish mottled red-brown slip, lightly burnished. Spherical body, conical neck, vertical handle, round in section from mid-neck to upper body. Incised decoration consisting of diagonal lines and dots on neck; triple zig-zag on handle.

619/43. R.P. III Mottled ware juglet. Fig.87. Intact. H. 19 cm., D. 12.4 cm.
Hard, grit tempered brown fabric; mottled red-brown to black, lightly burnished slip. Piriform body, slightly pointed base, beak spout, vertical handle, oval in section, from rim to upper body. Low spherical knob on either side of lower handle attachment, long medial incision on handle.

Cf. for an almost identical piece: Herscher 1976:19, Pl. IV:1.

619/55. R.P. III Mottled ware juglet. Fig.85. Intact (mended). H. 21.6 cm., D. 12 cm.
Hard, brown grit tempered fabric; mottled brown-red lightly burnished slip. Small ompholos base, squat ovoid body, tall cylindrical neck, flaring rim; tall horizontal loop handle on shoulder. Two relief bands placed diagonally at mid-neck.

Cf. for an almost identical piece, with exception of the base and handle: Herscher 1976:17, Pl. IV:7.

619/51. R.P. III Mottled ware spouted tankard. Fig.85. Fragmentary. H. 10.3 cm., D. 10.3 cm.
Hard, brown grit tempered fabric; thin mottled red-brown slip, lightly burnished. Globular body, wide neck and flaring rim; vertical handle, round in section, from rim to upper body; tubular spout.

Cf. Herscher 1976:17, 18, Fig. IV:9.

619/52. R.P. III Mottled ware spouted tankard. Fig.85. Spout fragmentary. H. 13.6 cm., D. 10.7 cm.
Almost identical to 619/51 above.

619/50. R.P. III Mottled ware tripod cooking pot. Fig.85. One handle missing. H. 13.7 cm., D. 11.5 cm.
Hard, coarse grey grit tempered fabric, pitted surface with slightly lustrous mottled brown-buff slip. Three short conical legs, round base, squat ovoid body, wide concave neck, plain flaring rim. Two opposed vertical handles, oval in section, from rim to upper body, one large one small.

Cf. Herscher 1976:18, Pl. IV:6, Pl. V:1.

619/49. R.P. III Mottled ware cooking pot. Fig. 86. One handle missing. H. 20.3 cm., D. 16.5 cm.
Hard, coarse brown grit tempered fabric; thin, mottled slightly lustrous brown slip. Flat base, ovoid body, wide concave neck with plain rim; 2 opposed vertical handles, oval in section. Thick walled.

619/53. R.P. III Mottled ware juglet. Fig. 85. Rim missing. H. 10.4 cm., W. 8.2 cm., L. 12 cm.
Hard, brown grit tempered fabric; mottled slightly burnished red-brown slip. Round base, irregular elliptical body with pointed ends; cylindrical neck, rising from flattened upper body; vertical handle, round in section, from rim to shoulder.

Cf. Des Gagniers and Karageorghis 1977:25, Pl. XX:" for shape.

619/54. R.P. III Mottled ware juglet. Fig. 85. Rim missing. H. 11 cm., W. 7.8 cm., L. 11.5 cm.
Same as above with slightly pointed base.

619/40. R.P. IV ware jug. Fig. 86. Intact. H. 39 cm., D. 23.5 cm.
Hard, light brown grit tempered fabric; thin lightly burnished brown-black mottled slip. Round base, ovoid body; cylindrical neck, curved beak spout; vertical handle, round in section, from rim to upper body; pointed lug at front mid-neck. Incised decoration with a 4 toothed comb consisting of horizontal straight and wavey lines on neck with alternating vertical zig-zags and straight lines on body.

619/44. Blue Core ware juglet. Fig. 86. Intact. H. 16.2 cm., D. 11 cm.
Very hard, brown grit tempered fabric with grey-blue core; thin lustrous mottled red, grey-brown slip; pock marked surface. Round base, ovoid body, cylindrical neck, beak spout; vertical handle, circular in section, from rim to upper body. Three horizontally pierced lugs at mid-neck; 4 hemi-spherical knobs on upper body. Deep, white lime filled incised decoration consisting of triangles filled with punctures on the upper body; multible parallel lines joining the knobs, with alternating zig-zags and parallel lines below; vertical multiple zig-zag on neck.

Cf. Herscher 1976, Pl. V:2 for shape, Pl. V:7, 8 for the hanging triangles.

619/45. Blue Core ware juglet. Figs. 86, 87. Rim damaged. H. 13 cm., D. 9.3 cm.
Very hard, buff grit tempered fabric, with grey-blue core; thin lustrous red-grey mottled slip. Round base, spherical body, cylindrical neck, beak spout; vertical handle, circular in section, from rim to upper body. One vertical lug at mid-neck; on upper body, 3 vertical lugs pierced twice; white lime filled incised decoration with a 3 toothed comb consisting of 2 horizontal bands on neck, hanging triangles filled with incisions at base of neck, with alternating vertical straight lines with or without superimposed circles below.

619/41. Blue Core juglet. Figs. 86, 87. Rim damaged. H. 18.5 cm., D. 13.7 cm.
Very hard, orange grit tempered fabric, with grey-blue core; thin lustrous red to grey mottled slip, very worn. Round base, ovoid body, cylindrical neck, beak spout; vertical handle, circular in section from upper body

to rim. White lime filled incised decoration with a 3 toothed comb consisting of horizontal lines on neck, and alternating zig-zags and straight lines hanging from neck.

Cf. Herscher 1976:18, Pl. V:6, for decoration especially.

619/42. Blue Core ware juglet. Fig. 86. Rim damaged. H. 16.7 cm., D. 12 cm.
Very hard, grit tempered orange fabric, with grey-blue core, pockmarked surface; thin lustrous brown to grey slip. Round base, squat ovoid body, cylindrical neck, beak spout; vertical handle, circular in section, from rim to upper body. White lime filled decoration, incised with a 3 toothed comb, consisting of horizontal lines and zig-zags on neck, and alternating vertical lines with or without superimposed circles.

619/46. Blue Core ware juglet. Fig. 86. Intact. H. 20.6 cm., D. 16 cm.
Very hard, dark brown fabric, with grey-blue core, pockmarked surface. Brown to dark grey mottled, slightly lustrous slip. Round base, squat ovoid body, concave neck, vertical handle, round in section, from rim to upper body. Convex vertical lug at front neckline. Incised white lime filled decoration with a 3 toothed comb, consisting of multiple vertical zig-zags or straight lines with superimposed circles; 3 squares on the upper shoulder, divided on the diagonal and filled with punctures.

Cf. Herscher 1976, Pl. V:7, 8 for shape and fabric.

619/47. Blue Core ware juglet. Figs. 86, 87. Intact. H. 13.6 cm., D. 10.2 cm.
Very hard grey grit tempered fabric; thin mat grey slip, pockmarked in places. Round base, squat ovoid body, almost straight neck, slightly everted rim; vertical handle, round in section, from rim to upper body. Vertical lug on neckline opposite handle. White lime filled incised decoration with a 3 toothed comb, consisting of alternating vertical zig-zags and straight lines.

Cf. Herscher op. cit. for shape.

619/86. Blue Core ware askos. Figs. 84, 87. Intact except for bridge between spout and handle. H. 14 cm., L. 14.4 cm., W. 10.8 cm.
Very hard, buff grit tempered fabric, grey core; mat grey slip. Three conical legs; irregular ovoid body, tubular neck, forward sloping beak spout; vertical loop handle, round in section, joined to spout by a ridge; short tail with incisions, protruding breastbone? 2 vertical pierced lugs representing vestigial wings? White lime filled incised decoration consisting of a framed zig-zag and punctures, running either side of handle, with the same motif alternating with 3 parallel lines placed vertically along the side.

Cf. Des Gagniers and Karageorghis 1977:35, Pl. XXXVI:1 for askos of same fabric.

619/57. Blue Core ware askos. Fig. 84. Intact. H. 8.4 cm., L. 7.6 cm., W. 10.8 cm.
Very hard, buff grit tempered fabric; slightly lustrous grey slip. Three short conical legs, ovoid body, tubular neck, forward sloping beak spout; vertical loop handle, round in section; conical lug at either extremity. White lime filled incised decoration with a multiple toothed comb consisting of horizontal zig-zag and parallel lines around mid body, with bands of parallel vertical lines above.

619/48. Blue Core ware juglet. Fig. 84. Rim chipped. H. 21.1 cm., D. 9.5 cm.
Very hard, light brown grit tempered fabric, grey-blue core; lustrous mottled brown to grey slip. Squat ovoid body, concave neck, vertical handle, round in section from rim to upper body. Vertical lug on neck-line opposite handle. White lime filled incised decoration on neck and body, consisting of alternating vertical bands made with a 4 toothed comb, with and without superimposed circles.

The 22 vessels from Peralijithias fall into 3 distinct categories, each of which is well represented at Phaneromeni. R.P. III Mottled is the largest with 12 examples, followed by Blue Core with 9 and R.P. IV with 1. According to the trend recognised at Phaneromeni Cemetery C and most other sites (see table 8), R.P. III Mottled ware predominates, and is followed by partially contemporary, but less common, Blue Core ware. R.P. IV ware, stylistically more evolved, is diagnostic of the L.C. IA settlement at Phaneromeni A. Although no R.P. III vessels are recorded here the 6 sherds of this type collected on the survey are indicative of its presence, and suggest that the necropolis of Peralijithias is contemporary with that of Beyouk Tarla to the south.

If the settlement was barren of surface sherds, this was amply compensated for by the quantity and quality of stone finds. Forty eight pieces were catalogued for the Curium House Museum, with 9 additional pieces going to the Limassol Museum.

Axe No. 1	2
Chisel	1
Rubber-pounder	16
Pounder	3
Rubbing-stone	1
Mini pounder	1
Hammerstone	1
Pecking stone	6
Whetstone?	2
Mace-head	1
Perforated stone (hammer)	4
Unfinished perforated stone (hammer)	1
Ovoid perforated stone (hammer)	1
Weight with hole	1
Mortar	1
Large stone basin	5
Saddle quern No. 1	9
Saddle quern No. 2	24
Jar cover	2

Tethering stone	1
Gaming stone (Zenet No. 1)	13
Gaming stone (Zenet No. 2)	4
Stone plaque with several Zenets	1
Gaming stone (Mehen)	1
Gaming stone? (variation)	3
Stone with depression or perforation	3
Threshold	3
	112

The lithic assemblage, with 24 categories, is remarkable in its variety. The predominance of Type 2 querns is typical, but 22 gaming stones is unusually high for a site of this size. Only at Phaneromeni and Beyouk Tarla were more games recorded, and these settlements are over 3 times as large. It would seem that at Peralijithias, even more than elsewhere, the inhabitants had sufficient leisure to indulge in non-productive activities. Peralijithias is reminiscent of Stympouli with its prolification of stone basins and "thresholds". In connection with the latter the 2 sites compliment each other admirably, for Stympouli provided their date and Peralijithias satisfactorily proved their usage. (see Ch. II p.100, 101).

The lack of surface sherds when compared with the abundance of stone, reminds one of the Kafkalla settlement. Since stone is hardly more durable than well fired M.C. pottery, the reason(s) for this discrepancy cannot be due to the inherent bias of surface collection alone; some other explanation must be sought.

The following table represents the total of sherds recovered. Most were small, weathered, and difficult to recognise, hence the high percentage of miscellaneous ware.

	sherds	%
R.P. III ware	6	3
R.P. III Mot. ware	93	40
R.P. IV ware	13	6
Blue Core ware	33	14
Coarse ware	26	11
Misc.	57	25
	228	99
Misc. late	113	

The ceramic assemblage closely resembles that from the settlement at Beyouk Tarla, and there is no doubt that both are contemporary.

Alignments of large weathered stone blocks are found in different parts of the site[1]. Structure 1 (fig. 81) is a quadrangular multi-roomed complex; but elsewhere a recognisable ground plan is lacking. Their date remains uncertain in the absence of sufficient ceramic evidence, but following a process of elimination it is probably M.C.. The lack of dating criteria suggests that the period of occupation is far removed in time, since pottery is always associated with B.A. buildings. As archaeological remains increase in age, so the chances of their disturbance also increase, with a resulting loss of information.

The surface survey indicates that 67% of the assemblage is M.C., the remainder being a motley collection of Hellenistic or later sherds, with no single type predominating. However inconclusive, the pottery does support a M.C. date, a view strengthened by a study of the lithic finds. The smaller pieces, handstones, gaming stones, saddle querns and the like, are typical of the B.A.. With the exception of the games, some of the pieces could be later, but seen as a group, and in the absence of L.C. pottery they must belong to the M.C.. Several large stone thresholds and basins associated with the structures, were believed to be Iron Age or later prior to the discovery of similar pieces at Stympouli and Beyouk Tarla. The latter sites do have signs - i.e. potsherds - of a post M.C. presence[2], but the lack of later burials in the vicinity does suggest they were only inhabited in the earlier period[3].

Architectural remains (Structure 3, Fig. 80) of a more mundane and less controversial nature were located 24 m. north of structure 2, a short distance from the edge of the plateau. There are traces of several

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1. Structures 1 and 2. See plan, Fig. 81. 2. Most arable land in Cyprus has at least a thin sherd scatter, usually of Iron Age date or later. In many instances this is not evidence for a settlement in the vicinity, but the remains of utensils or storage jars broken by farmers or herdsman. 3. See p.311.

walls built of fieldstones, probably belonging to a domestic structure. In the corner of one room, the neck of a large R.P. storage jar had recently been smashed by the plough. The depth of deposit cannot be gauged accurately, but since the amphora was previously intact, it has probably been standing in situ, in as much as 1.20 m. of undisturbed debris[1].

The Cyprus Survey records mention an "E.C. cemetery" at Anoyira Kambos: CS 1742. The material consists of R.P. III and R.P. III Mottled sherds from jars, amphorae and bowls, both wares being represented in almost equal proportions. The Cadastral Plan (LII:31) shows the locality of Kambos a short distance west of Anoyira, but a systematic survey failed to provide evidence for either a necropolis or settlement, and the villagers knew of no archaeological remains in the area.

Having surveyed the evidence we may now attempt to answer those questions formulated at the beginning of the chapter.

1. Nature of the site; settlement, cemetery, settlement-cemetery or farmstead. What relationship, if any, exists between these units? Determination of site boundaries.

With the exception of Trapezi[2], where no contemporary settlement was discovered[3], all sites showed evidence of habitation[4]. By far the largest settlement was Beyouk Tarla with 17.5 ha., followed by Kafkalla with 14 ha. Published comparative material for the E.C. and M.C. is lacking, but an approximate size estimation of the important Alambra[5] and Kalopsidha[6]

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1. There appear to be other alignments of large blocks on the edge of the plateau a short distance southeast of the spring. 2. In order to simplify the text of the present discussion, the site localities will not be prefixed by the customary village name. 3. The evidence is insufficient to equate the structure at Athanaros with the tomb excavated by Dikaios. 4. In this context the term"site" refers equally to cemeteries and settlements. 5. Coleman 1977:71 ff. 6. Astrom 1966:Fig.1 These are very approximate figures based on the location of trenches and reported finds.

settlements shows 15 and 20 ha. respectively. To gain a better idea of settlement sizes in Cyprus, it is instructive to compare these figures with those available for the L.C.. If dimensions are any indication of importance, and if the outline of the ancient city wall at Kition is accurate[1], it is then unquestionably the largest B.A. city in Cyprus, with an area of over 70 ha. The contemporary city walls at Enkomi[2] and Hala Sultan Tekke[3] protected smaller townships in comparison; the former measured 12 ha., and the latter, as estimated by Astrom, was 27 ha.

Beyouk Tarla and Kafkalla compare favourably with B.A. settlements elsewhere on the island, and it might be possible to gain some idea as to the number of inhabitants by comparing them with the present size/ population ratios of local villages. Sotira is a very traditional community and will provide a reliable guide. The stone houses, built in the last century when the population stood at 181, occupy an area of roughly 5 ha.. Kandou, with 9.5 ha., counted 513 inhabitants in 1974, and Erimi, with 13 ha. has over 600. In none of these villages are the houses tightly clustered; they are usually separated by small gardens and orchards[4]. The evidence suggests that the same "open plan" formula was adopted for much of the B.A., which explains the size of most settlements, Phaneromeni notably, where excavation has proved that a discontinuous settlement pattern existed during L.C. I. The smallest settlement of the study area is Kaminoudhia, and with 2 ha. it would seem that here, at least, the dwellings are in close proximity.

Although the evidence is wanting, long-lived settlements like Kafkalla, Stympouli, and Beyouk Tarla, must have shifted their focus of occupation through time, within their geographical boundaries. Unfortunately this hypothesis was not corroborated by surface sherding. At Phaneromeni, for example, we know the M.C. settlement was in area G and

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1. Nicolaou 1976:Fig. 1; Karageorghis 1976:53, Fig. 5. 2. Astrom 1972b: Fig. 12. 3. Astrom et al 1976:IV. 4. Christodolou 1959:63. He describes villages of the Episkopi area as "clustered but not very compact".

that some earlier structures must have stood near settlement A, since numerous querns, mortars and even a few gaming stones were used as building material for wall foundations. The location of this source was surely closer than the riverbed with its own inexhaustable supply of stone.

Nowhere has evidence for a perimeter wall been recorded, the implications of which will be discussed below.

At Kafkalla, Beyouk Tarla, Livadhia and Peralijithias the cemeteries partially coincided with the inhabited areas, but elsewhere the two were clearly defined. There is no evidence to suggest that the L.C. custom of placing tombs and habitations in direct association, was current during the Early and Middle Cypriot[1]. As the settlements were large there was sufficient room to reserve open spaces for necropoli. Elsewhere the living and the dead were clearly separated, and the distance might vary from a few metres to 350 m.[2].

The survey has clearly demonstrated that all cemeteries were in proximity to a settlement. Since chamber tombs are normally easy to recognise because of looters' activities, and since this form of burial remained in fashion from the Chalcolithic III until the Byzantine period, one can be reasonably certain of the presence or absence of a settlement in any given area from a study of the local necropoli. In other terms, the lack of a cemetery argues against there being a settlement in the vicinity.

The random clusters of dromoi in the cemeteries south of the Troodos are typical of the B.A. as a whole and call for no comment[3].

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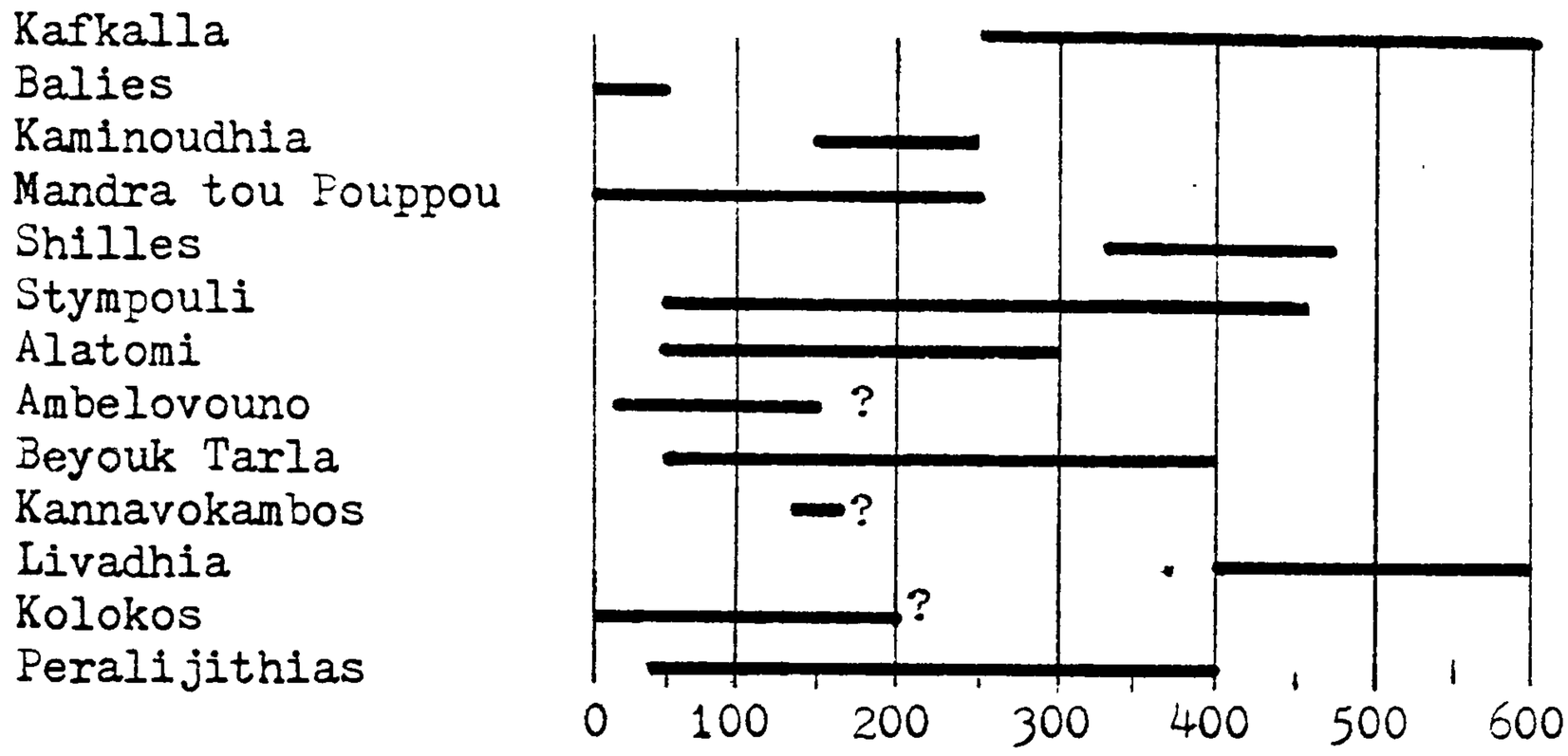
1. This practice might be associated with the lack of space in walled cities such as Enkomi Ayios Iakovos and Episkopi Bamboula, and a reluctance towards extra-mural burials. 2. The north cemetery at Stympouli is next to the settlement, and Balies is 350 m. from the Kafkalla cemetery. 3. For Vounous see Stewart 1950: Fig. 3; Dikaios 1940, fig. 1; for Lapithos see Gjerstad 1934, plan V:1, 2; for Karmi Palealona see Stewart 1963: Fig. 1; for comments on the location of tombs see Stewart 1962:215, 216; for Dhali Kafkallia see Overbeck and Swiny 1972: fig. 4; for the Pennsylvania excavations at Lapithos see Herscher 1975, plan I.

There are a few references to the relationship of settlements and cemeteries[1], but no figures are given of the distances between the two. Catling[2] publishes about 125 E. and M.C. settlements, most of which are associated with cemeteries, but his comments are all of a general nature: "cemetery X a short distance from settlement Y" for example. When cemeteries and settlements are given the same locality name it implies their proximity. It would seem, therefore, that the pattern diagnosed for southern Cyprus is typical of the island as a whole in the pre-L.B.A. period.



Maximum-minimum distance between settlements and water supply. Though the table shows a range, the preferred distance seems to be between 100 and 300 metres.

Cemeteries always consist of dense clusters of randomly placed dromoi. The smallest number recorded in one spot (excluding the single dromoi at Stympouli and Trapezoni) was at Kilades, (3) but there were certainly more burials nearby, whose existence has been obliterated by terracing and the location of a now ruined village[3]. The greatest concentration in one place was at Amolo where a minimum of 282 dromoi probably gave access to around 750 chambers. Single burials were very rare (Stympouli south, Trapezoni) and should be interpreted as the only visible specimens of larger groupings. Both at Stympouli and Trapezoni the tombs were

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1. For an ?E.C. settlement near the Vounous cemetery see Stewart 1950:40, 41; for settlements near Vounous, Vasilia and Karmi Palealonia see Birmingham (ed):1974;61, 62 for comments by B. Hennessy; the only specific reference to the distance between cemetery and settlement is in Overbeck and Swiny 1972:Fig.4, where 150 m. separated the two. 2. Catling 1963: 148 ff. 3. Goodwin 1977:216.

discovered in areas with a deep soil deposit which probably obscured the other chambers nearby. (See p.277).

Isolated artifact clusters were recognised east of Beyouk Tarla, and it would seem, in Episkopi village. These locations are far from perennial water supplies, but surrounded by arable land. That no tombs were found in their vicinity supports the theory that they were closely associated with a larger settlement[1]. Small sites of this type with a low obtrusiveness are extremely difficult to locate, and it is a fair assumption that all 3 known farmsteads are part of a larger system common to most settlements. Their role in animal husbandry and crop rearing was probably considerable[2].

Parallels for this form of settlement pattern are entirely lacking in other parts of Cyprus.

2. What environmental, agricultural or social reasons governed the location of a site? Were physiographic features such as hill tops, rises, ridges or valleys of importance? To what extent does accessability to water, arable land, the sea, the local biota or the altitude play a role? In which order of precedence were these factors taken into account?

The information gathered by the survey points to water as the one constant factor determining the location of occupation sites. Excluding the so-called farmsteads, each community is within easy reach of a perennial water supply, and 600 m. is the greatest distance measured between the two (cf. table p.312). Rivers or streams are the main source, for they attracted 7 out of the 12 settlements recorded, and amongst these the largest. The remainder were dependent on springs.

The second, and somewhat less obvious factor is the role played by

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1. Blackman and Branigan (1977:70) reach a similar conclusion in connection with Early Minoan farmsteads. 2. It would seem that this was the role played by E.M. farmsteads in the Ayiofarango lower catchment area in Crete, op. cit. fig.34. The writer's ideas on farmsteads were formulated prior to his acquaintance with the Ayiofarango report which supplied much corroborative evidence for his interpretation.

agriculture. If water were the prime consideration, it was only in conjunction with the proximity of arable land. There is no consistency, however, in the choice of soil, a fact demonstrated by the soil map (Fig. 2, 67) with sites superimposed. Once a perennial water supply had been selected the local soils were exploited, whether alluvium, immature red earth, zerorendzina[1] or calcarious marl. Sites have not been recorded in the narrow, deep valleys of the streams and rivers. No B.A. occupation was detected north of Kandou where the Kouris is restricted by the gorge and arable land is scarce.

Evidence for irrigation is lacking, but it could have been practiced with little effort in the lower reaches of the Evdhimou valley or at Balies. The local topography, however, suggests that dry farming must have been the main source of foodstuffs. Even if most of the land would be considered as marginal today (Fig. 2) at the turn of the century[2], using traditional agricultural methods it yielded in a normal year, a minimum of 15 to 18 bushels (405 to 486 kg.)[3] of wheat or barley per acre[4]. These figures are high for those generally accepted for the Mediterranean[5], which quote an average yield of 12 bushels per acre for cereals - possibly higher for barley and lower for wheat. They do, however, tally with those published by Christodolou (see n. 3) for the island as a whole. At that time, the bread consumption of a family of 5 would require slightly more than half a bushel of wheat per week[6]. According to these figures 3 acres of land could feed such a family, although the necessity to retain seed-grain - about 10% of the crop - to provide against crop failure and

1. Zerorendzina means literally "bitter" or "acid" rendzina. 2. See Fig.2 showing prime and marginal agricultural land as indicated by the present vegetation. 3. Christodolou 1959:128 mentions an average low yield of barley measuring 11.1 bushels per acre for 1947. 4. Information obtained from old village farmers, who gave the figures in kile (1 kile = 21 Okes; 1 Oke = 1.27 kg.) per Donum (1 Donum = 1600 sq. yds. or approximately 1/3 acre). 5. Michell 1940; Allbaugh 1953. 6. Local information. In this instance the figures quoted are low in comparison with other estimates. Blackman et al 1977:28 suggest that 8½ bushels would be the annual cereal consumption of an individual, whereas the present figures from Episkopi suggest that around 7 bushels were sufficient.

to fallow the fields on a 50:50 basis would necessitate the cultivation of over double that area.

Once the factors of water and arable land have been taken into consideration there remains little consistency in the geophysical aspect of sites. The inhabitants of Kafkalla, Beyouk Tarla and Peralijithias chose plateaux with a commanding view, naturally protected on one flank at least. Their size, nevertheless, would have made defence difficult if not impossible. Other settlements such as Alatomi, Ambelovounos and Kannavokambos spurned strong natural positions far from water for the slopes below, and the remainder were located with little regard for the view and even less for natural protection. Nowhere has any suggestion of a perimeter wall been noted[1]. Defence can hardly have been a consideration in the minds of the B.A. settlers, with the conclusion that peaceful conditions prevailed throughout the period under study.

Access to the local biota and exploitation of the region's natural resources are factors that must be taken into consideration when studying settlement systems. The evidence suggests that the lowlands were covered with light forest[2] or parkland, and the ideal habitat for the small selection of indigenous game[3]. The mouflon (Ovis orientalis) and the Persian fallow deer (Dama mesopotamica) dominate the list, followed by wild boar (Sus scrofa), fox (Vulpes vulpes)[4] and hare (Lepus capensis)[5], So far as can be deduced from the osteological remains excavated at Kalopsidha, hunting only played a minor role when compared with stock breeding[6]. At Phaneromeni the position is quite different, as Persian

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1. A semi-circular wall 1 m. thick enclosed part of the settlement at Ambelovounos; unfortunately there is no evidence for its date. 2. Christodolou 1959:47, 109. 3. Watson et al 1977 believe that all the species mentioned were imported by man, Cf. p.246 ff., or swam to the island. 4. There is no reason why fox should not be eaten, as it still is today in part of Southern Europe. Personal experience. 5. At present there is no archaeological proof for Lepus capensis in B.A. Cyprus: cf. Watson et al 1977:247. 6. Ekman p.168 in Astrom 1977; For Alambra the information is from personal experience; For Kalopsidha cf. Gejvall p.129 in Astrom 1966, and Astrom op. cit. p.141.

fallow deer seems to have played an important role in the settlement's subsistence system (cf. p.65).

Timber must have been an economic factor of some importance, and locally available to all sites. Nothing is known about the sources of clay and flint[1]. Slag was recorded at Ayios Ioannis which suggests indigenous copper ores, although none were previously reported in the area[2]. Whether extraction of the metal was linked with the large settlements at Livadhia and Kolokos is an open question, though it is unlikely, since the local tombs were apparently no richer in metal than the norm.

Altitude and access to the sea were apparently incidental factors governing the choice of site. The highest point within the survey area is under 500 m., and Catling records E.C. and M.C. finds at Ephtagonia and Kedheres[3] well above this altitude. There is good reason to believe that new discoveries would result from investigations further inland, to the point where the steepness of the hills and the postulated heavy forest cover made agriculture impossible. That the sea was exploited as a source of foodstuffs has been proved at Phaneromeni[4], but never does the positioning of the sites indicate any interest in the former as a means of communication.

There is little doubt that the physiographic aspect of the land had a bearing on the choice of cemetery sites. Eroded plateax and ridges with a good deposit of havara, chalk or a low-grade limestone were the typical location. Dromoi might be cut into the flat top of such features[5] or scattered along the slope of a hill[6], possibly depending on which had the least soil cover.

With few exceptions the above data correspond well to our previous

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1. The definitive study of the chipped stone from Phaneromeni is being undertaken by H. Morris. I wish to thank her for sharing her information with me and for many interesting discussions on the lithic assemblages from Phaneromeni. Some chert nodules were recovered from the Kouris riverbed. 2. Bear 1963. 3. Catling 1963:151, 156. 4. Cf. Ch. I p.67. 5. Cf.: Kafkalla, Amolo A, B, C, Stympouli, Beyouk Tarla, Shilles and Stavlismi. 6. Cf.: Ambelovounos, Kannavokambos, Kolokos, Mandra tou Pouppou A-D and Trapezi.

view of the E. and M.C. as defined by Stewart[1], Catling[2], and Astrom[3].

Water and arable land determined[4] the choice of site at the beginning of E.C., but towards the end of the period the mining areas show a slight attraction. Changes which occur in the northern half of the island during the M.C. are not mirrored in the south, where the evidence for fortifications, mass burials and tribal organisation is quite lacking[5]. The absence of such features is explicable in chronological terms - i.e. there is no M.C. occupation in the south - or as regional isolation, two alternatives which will be discussed in the conclusion. Proximity to the sea might have influenced the location of a few sites on the north coast[6], but not elsewhere. For practical reasons, the cemeteries which are usually located near the settlements, utilize the most appropriate rock formations on hillslopes and level plateaux and are rarely found on flat land.

3. Access to trade routes, if any. Do some sites show more evidence for external contact?

Contacts between the Chalcolithic III culture, Kamminoudhia and Trapezi have already been mentioned in some detail. Since most of the grave goods from the tombs excavated by Dikaios are of Chalcolithic III or like inspiration, we should envisage a straightforward adoption of ideas originating in the Ovgos valley, rather than a trading relationship. Whether the appearance of northern pottery styles is explained by the arrival of a culturally distinct group, or by the indigenous population adopting new ideas cannot be said, but however the stimulus is explained, it probably came via the Amiandos pass and the Kouris valley.

The survey failed to generate any direct information on possible trade routes, but by emphasizing the importance, and slightly awkward

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1. Stewart 1962:286 ff. 2. Catling 1963; 1966:23 ff.; 1973:165 ff. 3. Astrom 1972:274 ff.; see also the pertinent comments in Frankel 1974: 47 ff. 4. Catling 1966:27. 5. Catling 1966:166, 168. 6. Catling 1963: 139.

position of Kafkalla it suggests that trade might have been responsible for the location. The settlement was perhaps the southern terminal of a route that extended north via the Kouris valley towards the important and heavily settled Morphou region[1]. If the B.A. traveller wished to visit northwest Cyprus from the south coast, certainly the easiest and shortest path was to follow the Kouris and Amiandos valleys to the Amiandos pass, only 1200 m. above sea level. He then descended the broad Kariotis valley towards Pendaya on the Morphou bay, a total distance of about 70km. easily covered in 3 days. From here it was but a short trip of around 20 km. to Philia or 35 km. to the north coast near Vasilia. Nowhere else is the crossing of the Troodos range made with such ease, and it is no coincidence that the present main road from Morphou to Limassol follows a similar path. It is also no coincidence that the old Limassol-Paphos road forded the Kouris just south of Kafkalla[2]. The river is here confined to its bed by low banks, whereas a gorge upstream and a wide potentially marshy area towards Phaneromeni would have made crossing difficult elsewhere. Between Limassol and Pissouri village, the east-west trade route, if such existed, would have followed much the same path as the old road, for topographic reasons alone. If it kept to the low country whenever possible, it would have passed through, or very near to Shilles and Stympouli.

Kafkalla yielded the only W.P. sherds of the survey, and from a looted tomb there came a Proto W.S. jug[3]. Proto W.S. is not indigenous to the area as proved by neutron activation[4], but unfortunately its exact provenance remains undetermined. The quantities of Proto W.S. recorded at Phaneromeni must be an indication of its popularity, and there was obviously a steady flow of vessels from the place(s) of manufacture to the south coast. Popham[5] notes that "The main area of distribtion

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1. Catling 1963:135. Morphou Bay corresponds to area 5. 2. Two piers remain standing in the river just south of Kafkalla. 3. Karageorghis 1972:1008, fig. 7. 4. Personal communication from M. Artzy. 5. Popham 1963:286.

coincides with that of the main copper bearing region of the Island", a statement which would agree with Courtois' analysis of the fabric[1]. We now have evidence for copper smelting at Ayios Mammas and possibly Ephtagonia[2], which could have been the sources for Proto W.S. at Kafkalla and Phaneromeni. At this point, however, it is safer to argue for an origin nearer the centre of the island, and to interpret the appearance of Proto W.S. in the south as the result of trade via the Amiandos pass or a route circumventing the Troodos.

A Red on Black body sherd from a bowl was discovered at Shilles. It is almost certainly an import from the Karpass region.

Last but not least, a fine wheel-made Bichrome ware sherd from a jug was collected in Plot 78/1 at Beyouk Tarla. The nearest tomb was 300 m. to the north, which argues in favour of a domestic usage for this piece. Although the fabric, colours of pigment and general character of the sherd are typical of wheel-made Bichrome ware, no close parallels for the decorative motifs were recognised[3]. Artzy believes it comes from the east of the island, and certainly not from the Levant[4]. Whatever the answer, the Bichrome sherd was imported to Beyouk Tarla, a large wealthy community, yet one whose primary concern must have been agriculture and stock-breeding, as indicated by its isolated position far from the sea and postulated trade routes.

4. Architectural remains, including those of a funerary nature.

Architectural remains were too rare and fragmentary to be of much comparative value for the limited material available from Alambra[5],

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1. Courtois 1977. 2. Slag heaps were located by the author near these villages. 3. Epstein 1966. The best comparisons are with Pl. II:5, 6; Pl. V:1, 2. 4. Artzy et al 1972:22. The sherd has been sampled for neutron activation. According to Artzy (Pers. communication) a date of around 1650 B.C., or the very end of M.C. is quite acceptable. No Pto. W.S. was found at Beyouk Tarla which suggests that the site was abandoned slightly before the occupation at Phaneromeni A. 5. Gjerstad 1926:20 ff. Coleman 1977:71 ff.

Kalopsidha[1], Ambelikou[2] and Dhali Kafkallia[3] which consists of a few house plans and the eroded remains of a settlement.

Dry stone walls were recorded in section at Stympouli, Beyouk Tarla and perhaps Livadhia. Various cuts in the bedrock at Kafkalla make little sense unless related to structures long since disappeared. The more tangible remains at Peralijithias and Trapezoni, though comparable to Dhali Kafkallia, are difficult to interpret as isolated occurrences of building techniques not adopted in Cyprus until L.C. III. The use of large blocks in combination with fieldstones at Peralijithias & Shilles is encountered at Dhali Kafkallia and the fortress sites of Krini[4] and Nitovikla[5], and the similarities cannot be dismissed out of hand. In this context the so-called "thresholds" must be mentioned. Though classified as lithic finds they belong to the discussion on architecture. If our interpretation and dating of the 6 carved thresholds is correct - and the evidence is strongly in our favour - they indicate a strong tradition in stone carving, especially at Stympouli and Peralijithias. Here, the craft was not only concerned with utilitarian objects, but also applied to architecture. One may ask why these superior techniques in stone cutting and building[6] did not become more widespread until an advanced stage of the L.C., whereas ceramic technology never ceased developing[7]. This apparent disregard for progress is one of the major unanswered problems in the B.A. archaeology of Cyprus prior to around 1200 B.C. (L.C. III).

Funerary architecture, however, is more informative than that of domestic function, as developments can be traced in the shape and size of the dromoi.

No dromoi were visible at Kamminoudhia, and from a study of the

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1. Astrom 1966; Gjerstad 1926:27 ff. 2. Dikaios 1960:8. 3. Overbeck and Swiny 1972;25 ff. 4. Catling 1960:298, fig.76. 5. Sjoqvist 1940: 64 ff. 6. Metallurgy also failed to progress yet superior techniques were used on the Island: cf. Ch. III. 7. Wheel made pottery is not so rare as generally believed during the L.C. Cf. Artzy et al 1976 Astrom 1972b and c.

photograph of Dikaios'[1] excavation it seems likely that they were small and ill-defined. If this assumption is correct it provides another link with the Chalcolithic III burials at Kyra Kamina[2], Philia Vasiliko[3] and Ayia Paraskevi[4].

The small oval single-chambered dromoi characteristic of Amolo and probably Ambelovounos, are reminiscent of the earliest examples at Vounous, some of which are dated to late Chalcolithic III (Philia Culture)[5]. With one exception - T5D - all the tombs excavated by Weinberg at Phaneromeni containing R.P. I South Coast were small[6]. Dromos 24B excavated by the K.S.U. was of equally reduced proportions[7], and though the resemblance might be coincidental, it is nevertheless real.

After these early parallels with areas north and east of the Troodos, the dromoi of the Episkopi region show an indigenous character which was to prevail well into the L.C.. The cemeteries at Kafkalla (and Phaneromeni) contained 2 main types of dromoi: those of an irregular or oval shape, usually with single chambers, and a smaller group of elongated "trench-dromoi" measuring up to 9.80 m. long with 9 chambers or more[8]. Most dromoi have vertical sides and flat bottoms, unlike the stepped arrangement so common in the north and east[9].

The sherds collected from the different shaped dromoi belong to the R.P. III Mottled horizon, and there is no suggestion that shape and size of dromos is of chronological significance. More probably it was determined by such imponderables as personal taste, family of kinship ties, not to mention the availability of land. Only the careful excavation of such dromoi can hope to answer these questions which are beyond the scope of a surface survey.

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1. Dikaios 1948, pl. VI(b). 2. Dikaios 1962:156, fig.73. 3. Op. cit. p.160, Fig.75-79. 4. Stewart 1962:82. 5. Stewart 1950:82, fig.40, Tomb 88; p.94, fig.49, Tomb 91; p.100, fig. 56, Tomb 93; For dating see Stewart 1962:388. 6. Duryea 1965. 7. Karageorghis: 1976, Fig.66. 8. Duryea 1965:54. Other dromoi of this type were discovered at Phaneromeni, Cemetery J in 1978. See also fig.79:1. T117, 48; fig.74 Tomb nos. 48, 117, 140, 219. 9. Stewart 1962:fig. 88:2, 4; Fig.89:T317; Astrom 1972a:fig.4:4; fig.5:2; fig.6; 1, 5, 6.

From the limited evidence available, it appears that the dromoi at Paramali Mandra tou Pouppou and Evdhimou Shilles were quite small and deep. They tend to be quadrangular (often square at Shilles) and multi-chambered; quite different from the common type of the Evdhimou valley.

Funerary architecture varies little in the Evdhimou valley where deep, oval to circular dromoi with vertical sides and multiple chambers were preferred (Fig.79:1, 3). This form is not dissimilar to the "bath-shaped" type from Lapithos[1], which is normally multi-chambered. So far as is known, however, circular dromoi are not recorded in the north. The cemeteries of Amolo A and B, Stympouli and Beyouk Tarla all share these tomb types which remained in use for the duration of the R.P. III Mottled ware phase. Quadrangular shaped dromoi were apparently preferred at Kannavokambos, and in view of the associated pottery with its percentage of D.R.P. ware, these may represent an intermediate stage between the Chalcolithic III type and those of Amolo C. But this interpretation does create a problem since the Kannavokambos tombs are larger and more carefully cut than those from Amolo C.

5. Non-ceramic artifact assemblage. Determination of site function.

The non-ceramic finds from each site have been arranged in a synoptic table to emphasize the similarities and differences between each unit. The material from Phaneromeni has been included to serve as a standard.

Table 7 does much to emphasize the underlying similarity between the various assemblages. The typical pattern is for Type 2 saddle querns to head the list of surface finds from any one site, followed by the larger Type 1, then rubber-pounders and pounders. With a few notable exceptions other stone objects are more or less evenly distributed. An apparent lack of gaming stones at Kamminoudhia contrasts with other

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1. Stewart 1962:221, Fig.89:T301.

settlements systematically covered by the survey. Here, by contrast with the lack of games there was an abundance of chipped stone, suggestive of an early period within the B.A.[1]. No other site showed the same concentration, and even at Phaneromeni areas A and G where quantities of flint and chert were excavated, little was to be collected on the surface. There is no reason to believe that the chipped stone from Kaminoudhia is intrusive, in other words brought there by the Neolithic II inhabitants of Teppes. Not a single Neolithic sherd was collected, and the high burnish and distinctive fabric of Red Lustrous and other Neolithic II wares make them easily distinguishable from Chalcolithic III, E.C. and M.C.. pottery.

If our interpretation of the 10 x 3 and spiral patterns as games is correct, then certain sites are particularly attracted to this form of entertainment. With 24 and 19 games each, Beyouk Tarla and Peralijithias head the list, followed by Stympouli, Kafkallia and Livadhia. As we shall see in the following section, most of these sites were occupied for a considerable period of time, therefore the gaming stones need not all have been in use at once. There is no question, however, of the importance of these objects, which usually outnumber all other categories of stones, with the exception of Type 2 saddle querns, and the socio-economic implications of this situation invites speculation. The abundance and wide distribution of games at many sites suggests a commonly shared degree of leisure. Not only was Zenet played with a possible number of variants - i.e. the aberrations - but if and when the protagonists got bored with it, they could always engage in a session of Mehen! Indeed, it is an ingenious idea to carve a separate game on opposite sides of the same stone.

The absence/presence of perforated hammerstones and tethering stones

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1. This argument is based on the premise that the use of chipped stone declined from almost total dependence in the Chalcolithic I and II to its probable disappearance in the L.C. IB or II. No chipped stone is reported from Enkomi Ayios Iakovos or Episkopi Bamboula, though it might still have been used on a small scale.

in certain communities might have a bearing on the activities of their inhabitants. An increase in perforated hammers could suggest a parallel increase in materials that needed to be crushed, and the quantity of tethering stones should reflect the number of animals to be made fast. Unfortunately, no conclusions could be drawn from an examination of the data.

Generally speaking, the lithic assemblage is homogenous, and no single site shows an excessive concentration of a given artifact type. There are rare occurrences of unusual pieces - ship representation (see below p.325) strange shaped troughs, etc. - but most types are represented at 5 sites or more out of a total of 13.

The overall view shows a general lack of site specialisation, and industrial activity can only be deduced from negative evidence. Small scale copper refining activities were centred at Ayios Ioannis, but nothing suggests they extend back into the B.A.. Kafkalla is the only possible exception with its hypothesized trading connections.

Unfortunately the published stone objects of E. and M.C. date, often described in vague or ambiguous terms, are of little to no comparative value to the present study. Most of the references quoted have been used in the lithic chapter and need no further explanation - but it might be useful to reiterate here the main sources of information. Gjerstad[1] excavated "grinders for querns" (i.e. rubbing-stones), a mortar and a pivot stone at Alambra. From the Kalopsidha house[2] he recovered rubbing-stones and saddle querns, and from the same site Astrom[3] also found a number of lithic artifacts. Dikaios excavated saddle querns and "grinding-stones" at Ambelikou Aletri and possibly even perforated hammer-stones[4]. In his survey of E. and M.C. settlement, Catling[5] makes periodic references to "stone tool(s), quern(s), axe(s), weights and a pestle".

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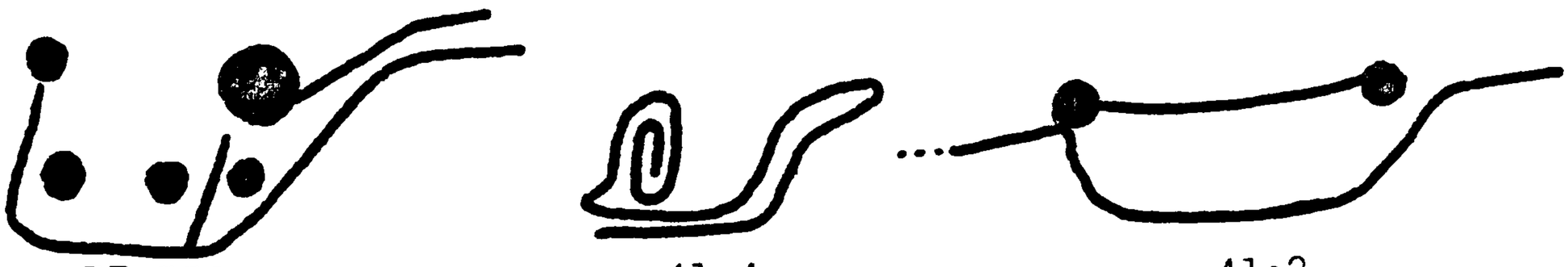
1. Gjerstad 1926:20 ff. 2. Op. cit.:27. 3. Astrom 1966:224.
4. Personal information from the foreman and draftsman of the excavation, Mrs. K. Georgiou and E. Markou. See Dikaios 1960:8 or for a plan with finds numbered in situ: Buchholz and Karageorghis 1973:132.
5. Catling 1963:148 ff.

The more diagnostic objects such as perforated hammerstones, troughs, pedestal basins, thresholds and gaming stones receive no mention and were either non-existent or unrecorded.

The similarities between the pattern carved on a fieldstone from Evdhimou Beyouk Tarla (BT S50) and the stylised representation of a ship cannot be overlooked. Two grooves on the right-hand side of the stone resemble a high forecastle. The lower of the 2 is prolonged downwards at a 40^{o} angle to show the bow. It then resumes a horizontal bearing - probably the keel - before rising up again to intersect with a large circular depression. A deep cut a short distance from the bow could be interpreted as the forward-raked mast, a feature common to early ship representations[1]. Three circular depressions above the keel and parallel to it, are difficult to interpret, but if a tenuous comparison may be drawn with the 8th century Phoenician custom of lining the flanks of their war vessels with round shields[2], these depressions might be an early example of this practice. Alternatively, they might have been shields held by warriors standing in the vessel[3].

An equally tenuous parallel exists between the Beyouk Tarla motif and those on the limestone slab (fig.41:4) and threshold (fig.42:2) from Peralijithias and Stympouli.

The former shows a roughly cut double groove, perhaps the schematic representation of a ship with high forecastle and stern. This motif and its association with the 3 x 10 (Zenet) pattern is similar to that pecked on the threshold, if viewed upside down. The circular depressions noted at Beyouk Tarla reappear also.



BT S50 41:4 41:2

Whatever the true significance of these rock-cut designs, their

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1. Herman 1966, pl.10. 2. Herman 1966, fig.167, 169, 176. 3. Landstrom 1961, fig.65.

comparison with the rare M.B.A. ship representations must be interpreted as highly speculative at present.[2a]

6. Ceramic assemblage. Determination of site function and relative chronology.

The ceramic assemblage collected by the survey is of no assistance when attempting a functional analysis of different sites. No site specialisation was recognised, and in this respect it should be noted that none was detected at Phaneromeni either. A number of trends, however, are clearly visible, and these will be discussed below.

A major problem in the analysis of pottery acquired by survey is the possible difference of wares reserved for funerary purposes and those intended for the household. Unless a settlement and its attendant cemetery show indentical percentages, their contemporaneity must remain in doubt. In practice, this never occurred within the survey region, therefore the alternatives must be considered: either the pottery types do vary between co-existent settlement/cemetery complexes, or none of the units are indeed contemporary. This last assumption is unlikely in the case of small, short-lived communities such as Kamminoudhia and Alatomi (see below), though difficult to prove with larger sites[1]. In the absence of excavation the evidence is inconclusive, but nevertheless suggests that the soft, elaborately decorated R.P. I South Coast ware was never used in settlements, and even R.P. III, which is more functional in shape but still soft of fabric, is very rare outside of the cemeteries. Other wares are hard and functional, even if sometimes elaborately decorated, as in the case of Episkopi and Blue Core ware.

The gap which exists between the Chalcolithic I [2] and the L.C. IA

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1. Unfortunately, the evidence from Phaneromeni Necropolis C and Settlement G, concerning the functional difference between cemetery and settlement, is limited by the eroded nature of the settlement. 2. Watkins 1973:45. 2a. Cf. Astrom 1972a, fig. 16:13. Note especially the stern post and stem of this model. See also a few of the L.B. ship grafitti from Temple IV at Kition in Karageorghis 1976, pl. 73.

must logically be filled, at least in part, by the wide range of intervening ceramic styles found in the Episkopi neighbourhood, an area too small for all the differences to be described as "regional variations".

In sections 1 through 5 we have surveyed the evidence from the sites, refraining whenever possible from making any comments on the relative date of each, in the hopes that secondary information will hint at the chronological divisons. Excepting an abundance of chipped stone and lack of games at one site, and the size and shape of dromoi at others, there are few chronological indicators, which leaves no alternative but to resort to the pottery for a relative sequence in the pattern of settlement.

Table 8 shows that the sites can be divided into 4 chronological groups on the basis of their ceramics. To Group 1 belong Trapezi, Kaminoudhia (cemeteries and settlement) and Kannavokambos, as determined by their percentages of R.P. Chalcolithic III and Dark R.P. wares. These sites provide an excellent link between the Chalcolithic I (Erimi Culture)[1] and the B.A.. Our present knowledge of the Chalcolithic III remains limited to sherd material and 10 vessels from 2 sites - Kaminoudhia and Trapezi -, but hopefully new material will be discovered. Studied as a group, the vessels from Trapezi show stronger ties (cf. p. 295) with the Chalcolithic II than the B.A., which suggests the burial is slightly earlier than Tomb 1 at Kaminoudhia. Fortunately the latter site has provided an excellent ceramic assemblage from necropolis and settlement alike. R.P. Chalcolithic III and Dark R.P. ware are not found at other sites in the area, therefore we may discount the possibility of regional variations as an explanation for their presence at Kaminoudhia. If this factor is combined with the high percentage of chipped stone and lack of games, the evidence strongly favours a date at the very end of Chalcolithic III or beginning of the E.C.

The few sherds with broad, deep lime-filled incisions are within the

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1. Watkins 1973:45, Map 4.

Chalcolithic III repertory of decorative motifs, and the technical features of the incision heralds the elaborate R.P. I South Coast style. Unless the 2 poorly fired Blue Core sherds are intrusive[1] they are the earliest occurrences of this ware.

In view of the limited number of wares recognised and the apparently small number of burials at Kaminoudhia, there is some reason to believe that settlement and cemeteries are contemporary. Without recourse to an excavation this suggestion is advanced as a working hypothesis to emphasize the functional differences between the pottery from both assemblages. The soft R.P. Chalcolithic III ware is replaced at the settlement by Dark R.P. and its more evolved counterpart R.P. III Mottled ware. The percentages are in fact higher than those shown on the table, since most of the 96 miscellaneous sherds belonged to D.R.P. or R.P. III Mottled ware.

The only other site to show Dark R.P. ware is Anoyira Kannavokambos, where R.P. Chalcolithic III[2] is replaced by R.P. III and Blue Core ware. A single piece of diagnostic R.P. IV ware suggests the necropolis had a long life-span, as there is no question of contemporaneity between it and the pottery discussed above.

If Blue Core and R.P. III Mottled ware are taken as a sign of development, then Evdhimou Amolo C, Ambelovounos and Amolo A are the assemblages that resemble Kaminoudhia most closely. All 3 sites, classified as Group II, have a high percentage of R.P. I South Coast and R.P. III, usually associated with smaller amounts of R.P. III Mottled. The drop in R.P. III Mottled is unexpected since it was the most common ware at Kaminoudhia, and suggests that R.P. I South Coast and R.P. III had become "funerary wares" par excellence. More utilitarian R.P. III Mottled

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1. It is indeed unlikely that these sherds are intrusive, since the nearest known occurrence of Blue Core ware is at Phaneromeni. 2. Most of the R.P. III ware sherds were small and weathered, which made recognition more difficult. Some might have been R.P. Chalcolithic III ware, cf. p. 266 No. 1.

ware was now being reserved for domestic use. The extremely low percentage of B.C. ware, and the absence of R.P. IV is an important reason for placing these sites early in the sequence. It should be noted that this Group is entirely represented by cemeteries and that we have no idea of the contemporary settlement pottery. The earliest remains at Stympouli and Phaneromeni should belong to this "phase", if such a term is indeed valid, but to date we have no architectural remains with which it may be associated.

The sites in Group III show R.P. I South Coast ware as almost obsolete and R.P. III decreasing in importance. R.P. III Mottled is in the ascendancy again, and Blue Core can represent up to a quarter of the assemblage. The probable differences between cemetery and settlement are again demonstrated by the ratios of R.P. III and Coarse ware at Alatomi. The contemporaneity of settlement and cemetery is here argued on the same grounds as at Kamminoudhia.

The IVth Group of sites, the largest and most heterogeneous, is characterised by the occurrence of R.P. IV and a tentative increase of Episkopi ware. The continued use of R.P. III and a high percentage of R.P. III Mottled suggests both cemeteries and settlements remained in use for a considerable time, since neither of these pottery types truly belong to the L.C. IA assemblage at Phaneromeni, dominated by R.P. IV and Episkopi ware. This supports the rather unlikely assumption that all sites in the area precede the establishment of Phaneromeni Settlement A, a view perhaps distorted by the nature of surface collections.

From the evidence recovered at Phaneromeni Settlements A, G and J, Beyouk Tarla, Stympouli and Livadhia, it seems that all the settlements investigated have shallow one-period deposits. In order to verify whether the surface sherd collections from such sites are accurately representative of the stratified archaeological remains below, all ceramic material from an area of 300 square metres adjacent to Settlement A was collected.

The results, presented in Tab. 8 (Phaneromeni A, surface), compare satisfactorily with the stratified assemblage.

Of the 428 sherds recovered, 285 or 66.5% were miscellaneous late. The remaining 143 were B.A., including the 16 "misc." which were too weathered for reliable attribution to specific wares. The relative percentages of B.A. wares exclude, as always, the body of miscellaneous late sherds.

R.P. III Mottled ware is slightly more common than in stratified levels, possibly due to looted material from the M.C. cemeteries being accidentally scattered over the surface. The high percentage of Blue Core is perhaps due to the hardness of the ware. This trait was previously suggested in connection with Erimi Kafkalla. R.P. IV and Episkopi ware sherds were much smaller (i.e. more difficult to spot) in comparison with Blue Core, a fact which suggests that their true percentages in relation to the latter should be higher.

The apparent lack of Coarse Ware is perplexing and unexpected, especially since it was always present on the surface of settlements investigated by the K.S.U. survey.

Erimi Kafkalla must be at least partially contemporary with Settlement A, as indicated by the discovery of a Proto W.S. juglet and 2 incised Episkopi ware sherds. The other settlements with high percentages of R.P. IV (Beyouk Tarla, Peralijithias, Shilles, Mandra tou Pouppou and Kolokos) are probably of the same class. We cannot, however, be certain of this, as none of the surface collections resembled that from Settlement A, low in R.P. III Mottled ware. If, then, the picture is undistorted, it suggests a sudden change in fortune at the end of M.C., translated by the abandonment of R.P. III Mottled "phase" sites. Settlement G, of this period, was apparently forsaken in favour of Settlement A for reasons which do not appear to involve violence or destruction.

Now that the picture is complete in all its known details, we may suggest that the pattern of settlement in the survey region took the following well-defined sequence:

A small number of Chalcolithic III settlements were established in river valleys or near springs, but always far from the sea. Either these communities represent an intrusion of northerners who then co-existed with the local, and as yet unrecognised, Chalcolithic II culture[1], or they were the result of the assimilation of new ceramic styles by the indigenous population.

The succeeding period, as represented by Group II, shows a local[2] diffusion of the settlement pattern from Phaneromeni in the east to Evdhimou valley in the west. None of the B.A. tombs in the Limassol Museum contained R.P. I South Coast ware, and the rare pieces in the Paphos Museum originated from the Yialia area northeast of Polis[3]. The Vasilikos Valley Project[4] east of Limassol, also failed to detect R.P. I South Coast ware[5]. Of note is the fact that all the sites of this category are cemeteries and as previously mentioned we are in the dark as to the exact relationship between the latter and local settlements. Were it not for the lack of R.P. IV and the small percentage of B.C. the chronological entity of this group would be open to question.

A unified ceramic tradition stretching from Larnaka via Kalavasos to Anoyira, and from Kato Kivides[6] to the sea, is represented by the

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1. Watkins 1973. It is possible that no Chalcolithic II existed in the south and that the Erimi Phase continued until the advent of Chalcolithic III. 2. The area west of Anoyira has not been surveyed, and no E.C. or M.C. remains have been reported, though such probably exist. Hadjisavvas 1977:222 ff. fails to mention any R.P. I South Coast ware from his survey around Kouklia, a view endorsed by Dr. D. Rupp's survey in the same area in 1979 (Personal communication). 3. Karageorghis 1975:817, for a R.P. I South Coast amphora (Fig.31) and a deep bowl; for another piece cf. Des Gagniers and Karageorghis 1976: pl. VI:1. 4. See Todd 1977:5 ff. 5. Personal communication from Dr. I. Todd. 6. LM RR 817 is a R.P. III Mottled jug from Kato Kivides. According to Mr. N. Petrides, the custodian, the site is in the middle of the village. The writer failed to detect any B.A. pottery on a visit to the site in 1977.

next period, which opens with Group III and closes with IV. Settlements and cemeteries are large, on occasion made use of sophisticated building techniques, and had time to spare on non-productive activities.

Throughout the period under discussion, factors governing the settlement pattern remain unchanged, which is also true of the basic life-style so far as we can determine from the present evidence. The focus was either along the river valleys or near the springs, but always close to a perennial water supply. Indeed, the maximum distance between a major settlement and its nearest possible source of water is 250 m. at Erimi Kafkalla. Though Anoyira Livadhia is now some 400 m. from a spring, others quite possibly existed closer in the 2nd millennium B.C. This inflexible dependance on water is only broken in the case of farmsteads, with their specialised requirements.

With the passage of time and the many changes caused or instigated by man - deforestation, reforestation, terracing and irrigation particularly - it is, at present, more difficult to assess the importance accorded to soils and biota by the B.A. settlers. In all likelihood, the presence or absence of a soil deposit was more important than its actual composition; as we have noted, there is no correlation between the richer soil types - Zerorendzinas or alluvial - and larger settlements. But whatever its size, each community was established within easy reach of extensive tracts of arable land. Notwithstanding the above mentioned factors which will have influenced the biota of southern Cyprus, it seems only logical that most of the countryside, the foothills especially, would have a good forest cover and were accordingly well stocked with game. The local flora and fauna were certainly factors of some importance to the community, although probably taken for granted.

The general impression conveyed by a study of the pre-L.C. II settlements in the Episkopi region, is that of peaceful agricultural communities with no need for natural or man-made defences and little

heed for the outside world. Throughout the period, contact with other areas of Cyprus was limited and sporadic, but nonetheless real. Ideas - Mehen, Zenet - and pottery - W.P., Bichrome, R. on Bl. - reached the area and were either adopted or rejected[1], but the region's apparent self-sufficiency and creative instinct are not to be underestimated[2]. The shape and decorative motifs found on R.P. I South Coast and Episkopi ware especially[3] are second to none in character and style, and had the early researchers of the E. and M.C. Bronze Age - Dikaios, Schaeffer and Stewart - focused their attention on the south, rather than the more easily accessible north coast, our view of the period would certainly be reversed. Had events followed this pattern in the south, an early established and elaborate ceramic typology would have somehow accommodated north coast pottery styles discovered later!

In any event, the upheavals marking the latter part of M.C. in the north and centre of the island, and reflected by the construction of fortresses and digging of mass graves, are absent from the southern region, which merges peacefully into the L.C.. At Phaneromeni, and probably elsewhere, the transition to L.C. is also accompanied by prosperity. The great number of games which suggest a certain amount of leisure, may be taken as one aspect of this prosperity, which is also diagnosed by the plurality of imported wares - Proto W.S., W.P., ~~Black~~ Red on Blue ~~on Red~~ and the like. A community fighting for survival would, theoretically, lack the means of exchange, the spare time or the inclination for such dispensable items and non-productive activities.

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1. The games of Mehen and Zenet were adopted, but none of the pottery styles were locally imitated: the south preferred incised decoration to painted motifs. 2. R.P. I South Coast, Blue Core and Episkopi ware were made, if not invented, locally. Though R.P. I South Coast was influenced by north coast techniques, it evolved a repertoire of shapes and decorative motifs apparently restricted to the Episkopi area. The material from Yalias in the Paphos Museum is not well provenanced and is yet to be fully assessed. Blue Core is more geographically widespread, though still limited to the south coast region. Episkopi ware, as its name implies, is almost exclusively restricted to the Episkopi area. See Ch. IV for further discussion of the pottery types. 3. The decoration of Blue Core is generally less carefully applied, less inventive and more stereotyped.

The sherd material from the Phaneromeni excavations and the survey was analysed with the aid of a computer in order to corroborate or reject the settlement pattern suggested in Table 8.

The analysis was made using the technique of non-metric multidimensional scaling, with the program KYSTZ (Bell Telephone Laboratories). A distance matrix for the sites was calculated from the sherd counts reduced to percentages, and the disseminating coefficient calculated as

$$D_{jk} = SQRT \sum_{i=1}^{R} (Pij - Pik)^2$$

i.e. the square of the square of the difference in percentage of each type of ware[1].

The results are shown as two-dimensional scatter diagrams (Tables 12, 13 and 14), where proximity between points indicates similarity between the ceramic assemblages. The configuration of each point is indicated above the relevant diagram.

Table 12 which deals exclusively with settlement material, shows 2 distinct, well separated groupings. Kafkalla, Beyouk Tarla and Peralijithias are positioned in the upper quadrants with Alatomi, Stympouli and Balies in the lower. The upper cluster corresponds to the settlements of Group IV in Table 8, and those in the lower cluster belong to Group III with the exception of Stympouli, on the borderline between both.

Settlement A occupies an equidistant position, although a plot above the upper cluster, which also fails to include Settlement G, would have been more appropriate. As expected Kaminoudhia is located on its own to one side.

The cemeteries[2] analysed in Table 13 fall into 2 clusters, broadly corresponding to those suggested independantly in Table 8. Kaminoudhia

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1. Doran and Hodson 1975. 2. The settlement material from Phaneromeni has been included in the diagram for comparative purposes.

is again isolated, but within the same quadrant as Amolo A and C, the main cemeteries of Group II. The remainder form a loose cluster in the lower half of the diagram. They represent Groups III and IV of Table 8.

The position of Settlement A next to Kafkalla and the isolation of Settlement G are perplexing and in need of clarification.

All sites are plotted on Table 14 with quite unsatisfactory results! The most obvious distortion is the location of the Kaminoudhia Settlement and Cemetery at opposite corners of the diagram and the proximity of Kafkalla Cemetery to Settlement A. The former assemblages are very similar and the latter are totally different. It is possible that the Kafkalla Cemetery and Settlement material has been accidentally permuted.

Under the present circumstances it is impossible to develop the results of the computer analyses or to explain why the differences exist. This is a project for the future.

CHRONOLOGY

The relative and absolute chronology of the Early and Middle Cypriot Bronze Age has recently been the focus of 2 separate studies by R. S. Merrillees[1] and D. L. Saltz[2]. It is gratifying to note that having followed different approaches they are in close agreement for such key dates as the beginning and end of Middle Cypriot[3].

No new evidence has emerged since the publication of these reports to warrant yet another discussion of the problem. Furthermore, the subject matter of this thesis contributes little, at this stage, to the relative, let alone absolute chronology of Cyprus.

The task of establishing an accurate island-wide chronology for the B.A. is complicated by the regional variations of the main ceramic styles. It would be premature to seek to incorporate the relative chronology suggested in Chapter VI with the established Cypriot chronology, until the ceramic assemblages from the tombs and settlements at Phaneromeni have been comprehensively researched. When completed, these studies will be compared with the chronological data provided by the architectural, lithic, metal and terracotta finds. In other words the chronological implications of each category of material will be viewed in the context of the regional culture. Only then can one establish a comprehensive relative and absolute chronology for southern Cyprus.

Meanwhile we shall point out some of the problems inherent in the Early and Middle Cypriot chronologies.

The main body of pre-L.C. foreign objects is from the Aegean[4], but as noted by Merrillees "...the relative and absolute chronologies of Greece, Crete and the Cyclades during the greater part of the Bronze Age lack the critical precision necessary to make them satisfactory points of reference."[5] This being the case, the Minoan imports are incapable

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1. Merrillees 1977. See additional comments on Cypriot B.A. chronology in Merrillees 1978:34-36. 2. Saltz 1977. 3. Merrillees op. cit. p.44; Saltz op. cit. p.66. 4. Cf. n. 1 p.135. 5. Merrillees op. cit. p.36.

of providing the much needed narrow dating for their associated Cypriot contexts.

The situation in Syria and Palestine is slightly less confused in terms of absolute chronology, if not terminology![1] Unfortunately we are thwarted once again in any attempt to establish synchronisms between the chronologies of the island and the Levant before M.C. II, by the lack of exchanged articles, vague typological attributions and broad time spans.

Prior to M.C. III there are only 3 incontrovertible Syro-Palestinian imports, represented by an M.B. I jug[2] from a Vounous tomb of E.C. IB date[3], and 2 M.B. IIA pithoi from the same site[4]. The M.B. I jug has no close parallels and cannot accurately be set within a time span of some 2 centuries starting 2200/2150 BC[5]. According to Merrillees the pithoi could equally belong to any stage of M.B. IIA stretching from 2000/1950 to 1750 BC, and prima facie there is no reason why they should be placed, as suggested by him, in the middle of the period.

On these grounds E.C. IB can be dated anywhere from ca. 2200 to 2000/1950 BC and late M.C. I from 2000/1950-1750 BC. Such wide alternatives in dating create a degree of uncertainty for the Syro-Palestinian synchronisms equal to that which exists for the Aegean.

The study the Philia Culture material from Sotira Kaminoudhia and Anoyira Trapezi supports Merrillees' postulation[6] that a cultural phase - i.e. Chalcolithic III - should be intercalated between Chalcolithic II and E.C. I at Vounous. It would seem, however, that some of the internal divisions of E.C. and M.C., especially those based on arbitrary figures[7], are premature. They have been omitted from the absolute chronology established by Merrillees and Saltz[8] followed in this work.

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1. Merrillees op. cit. p.38; Saltz op. cit. p.51. 2. Merrillees op. cit. p.45. 3. Tomb 164B. 4. Merrillees 1974:75 f. 5. Hennessy 1973:7. 6. Merrillees 1977:45. 7. Merrillees op. cit. p.44; Merrillees 1978:36. 8. Saltz only dealt with the M.B.A.

Chalcolithic III	–	2500?-2300/2275 BC
E.C. I-III	–	2300/2275-1925/1900 BC (2000/1950 Saltz)
M.C. I-III	–	1925/1900-1650/1625 BC
L.C. IA	–	1650/1625-1575/1550 BC
L.C. IB	–	1575/1550-1475/1450 BC

CONCLUSION

As stated in the introduction, the goal of the foregoing study was to provide a more balanced view of southern Cyprus before the Late Bronze Age, and to establish a sound basis for future investigation.

Excavation at the settlements and cemeteries at Phaneromeni went a long way towards this end, by providing for the first time a comprehensive view of Middle and Late Cypriote IA culture south of the Troodos range. The domestic architecture shows no evidence for external or foreign influence, though both in technique and plan the structures adhere to an island wide pattern of sub-rectangular units forming rambling, multi-roomed complexes. Although the evidence is lacking at Phaneromeni, circumstantial evidence suggests that large unhewn blocks and carefully carved thresholds at several sites were part of the architectural repertory.

The inhabitants of Settlement A lived a simple, parochial existence, based on agriculture and animal husbandry, supplemented by sea foods and hunting. The circumstances leading to the abandonment of the settlement precluded the recovery of the full artifactual assemblage and its distribution pattern. Nevertheless, the reliance on stone - both ground and chipped - was unsuspected at this late date. Metal and terracotta types were quite rare and of limited function; there is good reason to believe that both were manufactured in situ. Whether the chase was considered a simple necessity or a sport is unknown, but it seems that a more sedate form of recreation was provided by board games, the most common of these being derived from the Egyptian games of Mehen and Zenet.

In the strictest sense of the term to describe the archaeological remains at Phaneromeni as Middle or Late Bronze Age is a misnomer, for metal objects were either pure copper or a copper arsenical alloy. The extreme rarity of tin bronze in the south is emphasised by the fact that only 12 out of 40 M.C. and early L.C. objects were made of the alloy; of the remainder 19 were almost pure copper and 9 had a small addition

- 1.5 to 6.0 - of arsenic. Most of the analysed knives are tin bronze, but otherwise there is little chronological or functional correlation between object types and their composition. This conclusion, based as it is on a large, well dated and accurately analysed body of material is important and should probably be seen as typical of the island as a whole in Middle and Late Cypriot I. A similar pattern, with even less tin bronze, may reliably be projected for the E.C.. The most perplexing fact to emerge from the present study which supplements our knowledge of a metal industry previously limited to the northern and eastern sectors of the island, is that now the sophisticated M.C. shaft-hole axes are proven to be without visible impact on the autochthonous bronze working technology.

Utilitarian terracottas are not given much attention in the existing literature. The systematic recording and classification of all southern types will hopefully serve as a useful basis for future studies. This approach is shown to provide corroborative data which might otherwise have been overlooked.

An absence of W.P. ware, the north coast criterion for the M.C., had led earlier researchers to believe that southern Cyprus was almost uninhabited at this time. An important conclusion is that strong native ceramic styles originated at the beginning of the E.C. and thrived in the M.C.. The development and nature of the E.C. assemblage remains undetermined due to the lack of recorded occupation sites and an unclear view of the relationship between settlement and cemetery ceramics. In the M.C. the situation is unequivocal: the soft R.P. I South Coast and R.P. III wares were reserved for funerary use and the morphologically functional R.P. III Mottled, R.P. IV and Drab Polished Blue Core wares find a domestic use. Drastic changes take place with the advent of L.C., probably resulting from repercussions of the unsettled conditions elsewhere on the island. Pottery styles change, R.P. III Mottled suddenly falls from favour, Drab Polished Blue Core is on the wane, whereas

R.P. IV and R.P. Punctured ware dominate the repertory.

There is no reason to believe that the transition was marked by violence. The M.C. settlement in Area G was abandoned peacefully for unclear reasons, in favour of Area A below. The deliberate destruction of this last was at the close of L.C. IA rather than the beginning. It was then abandoned, and some, if not all of the inhabitants moved to a more prominent - and defensible - position at Episkopi Bamboula. Some pottery types of the earliest period at Bamboula are related to those from Phaneromeni, emphasising the unbroken settlement sequence from Middle to Late Cypriot IA.

The major conclusion of the archaeological survey is that the southern region was far from uninhabited in the M.B.A.. On the contrary, the evidence suggests occupation at that time was heavier than at any other point in history - excluding the 20th century. Indeed, within a 12 km. radius of Paramali village there are a minimum[1] of 16 major settlements as compared to the 8 villages and 2 stations with a combined population of about 1900 a century ago. During the first half of the second millennium B.C., factors governing the settlement pattern remain unchanged: the focus was along river valleys or near springs, always close to a perennial water supply. Proximity to tracts of arable land was an important, though secondary, consideration, and one must presume that access to the local biota was taken for granted. Neither at Phaneromeni nor elsewhere were strategic locations and defensive structures judged a necessity, which suggests that peaceful conditions prevailed throughout the period. Each community had one or more burial grounds, and the lithic and ceramic assemblages recovered from settlements and cemeteries alike share a strong cultural identity, emphasising the unity and wealth of the region.

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1. Since the survey did not attempt to cover every parcel of land it cannot presume to be complete.

APPENDIX I

Report on the analysis of four bronzes from Early Cypriot I tombs at Vasila (now in the Ashmolean Museum, Oxford)

Introduction

The analyses were undertaken as part of a general survey of Early and Middle Cypriot metalwork conducted by Mr. S. Swiny of the Institute of Archaeology. The metalwork is amongst the earliest known from Cyprus and thus of especial interest.

Method

Samples of uncorroded turnings were drilled from the objects, and analysed by Atomic Absorption Spectrometry typically using a 10 mgm sample. The full details of the method are given in Hughes et al, (1976). The precision of the results is ± 1% for the major elements, and ± 20% for the trace elements. Each of the elements sought could be detected down to at least 0-005% in the metal.

Discussion

Three of the items are of copper whilst the toggle-pin (1957-28) is of arsenical copper. The trace element content of all the metalwork is low suggesting that the copper ore used was a secondary oxide type. Thus it is very likely that the arsenic content in the toggle-pin is a deliberate alloy component, which was probably added to the molten metal in the form of Reaglar or Orpiment, sulphides of arsenic. If the arsenic had come adventitiously into the metal from the copper ore one would expect the other trace elements to be correspondingly high. Each of the items has quite an appreciable iron content, between 0.3 and 0.6%. Recent experimental smelts by Tylecote et al (1977) and the author's own work at Timna, Israel on the analysis of raw copper made there (Craddock forthcoming) has shown that the smelting of copper oxide ores using an iron oxide flux as a slag former gives a relatively pure copper, but with

a substantial amount of metallic iron, (from 1 - 2% typically). Even after purification iron contents in both Tylecote's experimental metal, and in the ancient Timna metal was similar to that found in the Vasila metal.

Although manganese is present in only very small amounts, the fact that the manganese content is measurable is interesting since it normally falls below the detection limit of the apparatus. The small amounts reported here almost certainly came from the iron flux. However some Middle Cypriot metalwork from Limassol has been reported to contain up to 1.5% of Manganese in the metal (S. Swiny pers. communication). Since manganese does not dissolve in copper, it is almost certainly present as the oxide slag inclusions. It is therefore possible in this latter case that manganese oxides were being used as a flux, as they were at Timna during the Layer I phase of operations. (Rothenberg 1972).

The metalwork from Vasilia is of copper with one deliberate alloy of arsenical copper, the copper in each case being formed from an oxide ore fluxed with iron oxides during smelting.

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Report on the composition of Bronze tools and weapons from Vounous Bellapais, Evereti and Philia, Cyprus, (now in the Birmingham Museum).

Introduction

This metalwork all comes from excavations carried out at Early Bronze Age cemeteries on Cyprus. The material from Vounous Bellapais has previously been analysed by Professor Desch (Stewart 1950), and reported to contain up to 7% of zinc. This is the only group of excavated Bronze Age metalwork reported to contain more than traces of zinc, but similar material excavated from the same cemetery by Dikaios (1940) and analysed by Atkinson, the then Cyprus Government chemist, contained no zinc. Thus it was felt imperative to check Desch's published results, especially for the zinc content.

The samples were drilled from the bronzes using a modeller's 12 volt drill mounting a size 6 0 (1mm. diameter) hardened steel bit. Surface drillings and corroded material was discarded, and about 10 mgs. of metal turnings were recovered for analysis. The samples were analysed by Atomic Absorption Spectrometry using standard methods, the precise details of which have been published by Hughes et al (1976). The precision of the method is ± 1% for the major element and ± 20% for the trace elements. This may seem an unduly pessemistic estimate of the trace element precision but the interlaboratory comparisons conducted by Chase, (1974) showed very considerable reported variation between laboratories on the same sample especially for the trace elements. All the quoted elements in this report could be detected down to at least 0.005% in the metal.

Discussion

Table one shows the reanalysis of 8 of the 47 Vounous Bellapais bronzes from the Stewarts excavations, together with axe T161-48 not previously analysed. Beneath the element concentrations for the 8 objects reanalysed are Desch's original published results, taken from the 1950 report. It can be immediately seen that there is a serious discrepancy. The original

high zinc contents are not repeated, but the arsenic contents seem much higher. The reported 1% tin content of Axe 161.45 could not be repeated, and the reported 11% tin in the dagger 143.32 was reanalysed at only 7%. Most other elements were not quantified in the original report. Desch does not quote his precision but the method of analysis was emission spectrography which usually has a quoted error of ± 20% for all concentrations. With this large error, it is meaningless to quote the major element, in this case copper and it is normally omitted from the results. Thus there is no check on the analyses in terms of the quoted figures adding up to approximately 100% as is the case with wet chemical or Atomic Absorbtion analytical techniques. It is difficult to explain the original report of high zinc and the low arsenic concentration, since the emission/spectra of the two metals are totally dissimilar and occur in different regions of the spectrum. One possible explanation is a mix up of samples. Professor Desch undertook analyses of samples from many sources, and it was noticed on resampling that only on the knife 161.43 could the old drill holes be relocated - blade and rivets on the blade. Significantly this was almost the only artifact where the old and new analyses were compatable. It is therefore a distinct possibility that the original published analyses were not for Vounous Bellapais metalwork at all.

The Vounous metalwork is of arsenical copper or copper with just one example of a tin bronze from the E.C. III period (approx. 2,000 B.C.); this is dagger 143.32. The trace element content of the copper is low suggesting a secondary oxide ore was the source of the copper. The artifacts with high arsenic also have low trace element contents, suggesting that the arsenic is not coming from the copper ore but represents a deliberate addition probably in the form of the arsenic sulphides, Realgar or orpiment. The arsenic contents do not correlate with the artifact types. This is similar to other contemporary metalwork from Cyprus but very different from arsenical coppers in Iberia for example

where there is a preferred arsenic content for both chopping and cutting tools (Craddock 1976).

Res. Lab. File No. 3881 P. T. Craddock

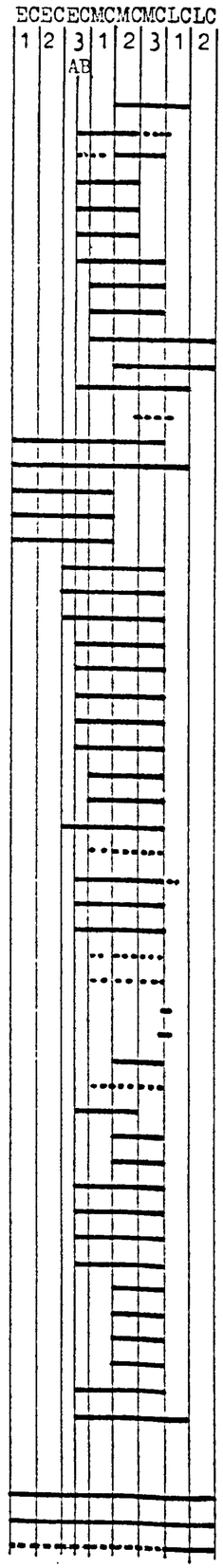
CATALOGUE OF SITES AND PLACENAMES SHOWN ON FIGURES 1 AND 2

Akhera Chiflik Paradisi
Alambra Mouttes, et al
Alatomi: Evdhimou Alatomi
Ambelikou Aletri & Choma tis Galinis
Ambelovounos: Evdhimou Ambelovounos
Amiandos Pass
Amolo: Evdhimou Amolo
Anoyira Village
Apliki Karamallos
Arpera Nosphilos
Athienou Bamboulari tis Koukkouninas
Ayia Irini Palaikastros
Ayios Mamas Skourka
Balies: Kandou Balies
Beyouk Tarla: Evdhimou Beyouk Tarla
Dhenia Kafkalla
Enkomi Ayios Iakovos
Ephtagonia Village
Erimi Village
Evdhimou Village
Famagusta
Kafkalla: Erimi Kafkalla
Kafkallia: Dhali Kafkallia
Kalavasos Village
Kalopsidha Tsaoudhi Chiflik
Kaminoudhia: Sotira Kaminoudhia
Kandou Village
Kannavokambos: Evdhimou Kannavokambos
Karmi Palaealona
Kedhares Pesoula
Khalandrikas: Petra Khalandrikas
Khirokotia Vounoi
Kilades: Evdhimou Kilades
Kissonerga Ammoudhia
Kolokos: Anoyira Kolokos
Kouklia Marcello, Pigadhes, et al
Krini Merra
Kyrenia
Lapithos Vrysi tou Barba, et al
Larnaka
Lefka
Lemba Lakkous
Limassol
Livadhia: Anoyira Livadhia
Maa Paleokastro
Magounda Village
Mandra tou Pouppou: Paramali Mandra tou Pouppou
Morphou
Myrtou Stephania
Nicosia Ayia Paraskevi
Nikolidhes: Ayios Sozomenos Nikolidhes
Nitovikla: Koravia Nitovikla
Orga Palaealona
Paphos
Paramali Village
Pendaya Mandres
Pera
Peralijithias: Anoyira Peralijithias
Phaneromeni: Episkopi Phaneromeni
Philia Drakos, Vasilikos, et al
Phinijin: Episkopi Phinijin
Phlamoudi Melissa
Pigadhes: Myrtou Pigadhes
Polemidia: Limassol Polemidia
Politiko Tamassos
Pyrgos Village
Shilles: Evdhimou Shilles
Skouriotissa
Sotira Village
Stympouli: Evdhimou Stympouli
Tekke: Hala Sultan Tekke Vigaja
Teppes: Sotira Teppes
Toumba tou Skourou: Morphou Toumba tou Skourou
Trapezonia
Trimiklini Ayios Mnassos
Vasilia Evremata
Vathyrkakas: Souskiou Vathyrkakas
Vounous: Bellapais Vounous
Yialia Village

1. Rm. 2? Flat stone at base. H. 12. D. 20-32. Distinct fire reddened line 0.4 thick on inside of first (outer) lining. Relined twice at a later date.
2. Rm. 2. Hollowed stone at base. H. not pres. D. (base) 17.
3. Rm. 2. Flat stone at base. H. 14. D. 20-30.
4. Rm. 2. Hollowed stone at base. H. 19.5. D. 19-34.
5. Rm. 2. Flat stone at base. H. 8. D. (base) 16.5.
6. Rm. 3. Flat stone at base. H. 16. D. 11-29. Possible signs of intentional firing.
7. Rm. 3. Flat stone at base. H.14 (total height of original bin). Rounded rim 14 cm. thick. D. 14-36.
8. Rm. 3. Flat stone at base. H. 7. D. 23-26.
9. Rm. 27. Slightly hollowed stone at base. H. 15. D. 19-42.
10. Rm. 27. No stone. H. 16. D. 16-40. Intentionally fired.
11. Rm. 7a. Several small riverstones at base. H. 18. D. 18-35. Relined 3 times.
12. Area 26. Flat stone at base. Sides eroded almost to level of stone.
13. Area 26. No stone. Badly preserved.
14. Area 20. No stone. Badly preserved.
15. Area 20. No stone. H. 16. D. ca. 18-32.
16. Rm. 13. Flat stone at base. H. 28. D. 20-44. Very carefully made. Thin, hard inner lining from 0.8 to 1 cm. thick.
17. Rm.13. Hollowed stone at base. H. 15. D. 20-33.
18. Rm. 13. Hollowed stone at base. H. 26. D. 18-42.
19. Rm. 13. Hollowed stone at base. H. 22. D. 19-31. Thin hard inner lining ca. 1 cm. thick, backed with red mud mortar.
20. Rm. 13. Attribution questionable.
21. Area 22. Three small riverstones at base. H. 10. D. 20-30.
22. Rm. 12. Attribution questionable.
23. Rm. 12. No stone. Carefully rounded base. Most carefully made bin of settlement. H. 18. D. ca. 20-36. Thin hard inner lining 1-2 cm.
24. Rm. 9. Convex stone at base. H. 13. D. 17.5-40. Partially free standing.
25. Rm. 9. Hollowed stone at base. H. 9.D. 20-30.
26. Rm. 15. Hollowed stone at base. Little lime preserved. D. (base) 18.
27. Rm. 16. Hollowed stone at base. Little lime preserved.
28. Rm. 16. Several small riverstones at base. H. 18. D. 18-29.
29. Rm. 17. Hollowed stone at base. H. 15. D. 16-26.
30. Area 25. Attribution questionable.
31. Area 25. No stone. Rounded base. Measurements undetermined.
32. Area 25. No stone. Rounded base. Measurements undetermined.
33. Area 19. Flat stone at base. H. 7. D. 17-23.
34. Area 19. Convex stone at base. H. 15. D. 19-42.

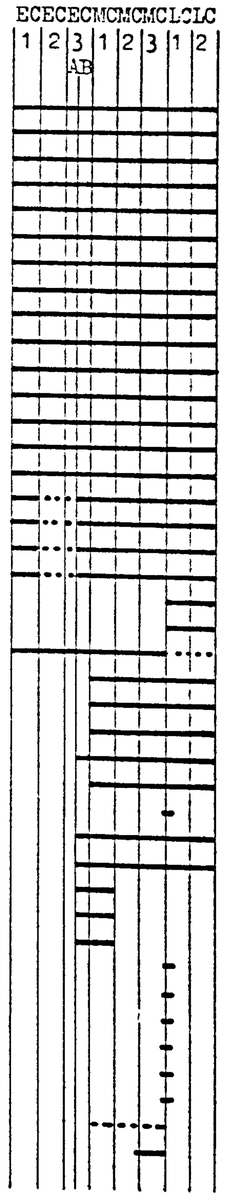
Note: All measurements in centimetres.

Table I: Lime plaster bins.



			Cu	Pb	Sn	Ag	Fe	Sb	Ni	Au	Co	As	Cd	Bi	Zn	Mn	Si
Knife	M16	As. Copper	96.50	.6700	.8500	.0030	.3000	.0400	.0040		.0040	1.500		.0040			
Knife	M34	As. Copper	93.00	.1400		.0050	.3200	.0200				6.000		.0200	.0200		
Knife	M60	As. Copper	99.00	.1100	.2300		.5300	.0100	.0060			2.200		.0010	.1200		
Knife	LMRR619/21	Tin Bronze	Cu	+	5/10		+		+						+	1/1.5	+
Knife	PM2141/60																
Knife	LMRR149/42																
Knife	LMRR151/67	Tin Bronze	Cu	+	5/10		+		.2000						+		+
Knife	LMRR149/9	Tin Bronze	Cu	+	5/10		+		.2000						+		+
Knife	LMRR211/6	Tin Bronze	Cu	+	5/10		+		+						+		+
Knife	LMRR149/41	Tin Bronze	Cu	+	5/10		+		+						+		+
Knife	LMRR18/3	Tin Bronze	Cu	+	5/10		+		1.000						+	1/1.5	+
Knife	LMRR619/20	Tin Bronze	Cu	+	5/10		+		+						+		+
Knife	LMRR18/4	Copper	Cu	+			+		+						+		++
Knife	KAL8/12																
Knife	KAL8/45																
	M25	Copper	98.50	.0200			.3000		.0020		.0020	.0400		.0050		.0010	
	B1																
	B6																
Dagger/	LMRR211/7	Copper	Cu	+			+		+						+	+	++
Spearhead	LMRR611/17	Tin Bronze	Cu	+	5/10		+		+						+	1/1.5	+
	PM2141/58																
	KAL8/10																
	KAL8/32																
Sword	LMRR619/19	Copper	98.00	.0200	.1400	.0020	.2500	.0070			.0300	.7000		.0070	.0100	.0050	
Sword	LMRR520/1	Copper	Cu	+			+		+						+	+	++
Sword	KAL8/11																
Razor	PM2142/9																
Razor	PM2141/59																
Razor	LMRR608/36	Copper	Cu	+			+		+						+	+	++
Pin	M2	As. Copper	96.00	.4500	.1500	.0020	.2300		.0600		.0150	2.500		.0020		.0040	
Pin	B4	As. Copper	97.00	.0500		.0020	.5300	.0100	.0300		.0080	1.300		.0100	.0100		
Pin	B2																
Pin	B3																
Pin	B5	As. Copper	92.00			.0050	.2000	.0100	.1100		.0600	5.300		.0100	.0400		
Pin	M1																
Pin	M29	Copper	99.00	.3000			.5500	.0250	.0010		.0030	.4000		.0020	.0100		
Pin	M58	Copper	100.0			.0150	.2000		.0100			.2000			.0800		
Pin	M49	As. Copper	96.00	2.200		.0050	.6100	.0400	.0200		.0200	1.700		.0400	.0300		
Pin	LMRR121/21																
Pin	LMRR608/33	Copper	Cu	+			+		+						+	+	++
Pin	LMRR351/1																
Pin	LMRR351/2																
Pin	LMRR151/12																
Pin	LMRR211/23	Tin Bronze	Cu	+	5/10		+		+						+		+
Pin	LMRR211/12	Copper	Cu	+			+		+						+	+	++
Pin	LMRR211/13	Tin Bronze	Cu	+	5/10		+		+						+		+
Pin	LMRR149/10																
Pin	LMRR149/17																
Pin	LMRR235/48																
Pin	LMRR235/47	Copper	Cu	+			+		+						+	+	++
Pin	LMRR382/13																
Toggle Pin	LMRR211/3	Copper	Cu	+			+		+						+	+	++
Pin	LMRR151/2																
Pin	LMRR151/3																
Needle	M18																
Needle	M45																
Needle	M55																

				Cu	Pb	Sn	Ag	Fe	Sb	Ni	Au	Co	As	Cd	Bi	Zn	Mn	Si
Needle	M28																	
Needle	LMRR149/8																	
Needle	LMRR149/15																	
Needle	LMRR149/44																	
Needle	LMRR151/4																	
Needle	LMRR151/5																	
Needle	LMRR151/6																	
Needle	LMRR151/13																	
Needle	LMRR151/14																	
Needle	LMRR211/10																	
Needle	LMRR211/11																	
Needle	LMRR235/41																	
Needle	LMRR235/49																	
Needle	LMRR383/26																	
Needle	LMRR383/27																	
Awl	M30		As. Copper	98.00	.0900	.4500	.1000	.2300		.0060			1.500		.0015			
Awl	M31																	
Awl	LMRR121/51		Copper	Cu	+			+		+						+	+	++
Awl	LMRR533/10		Copper	Cu	+			+		+						+	+	++
Nail/Tack	M56																	
Nail/Tack	M17		Copper	99.00	.0200		.0030	.6000		.6200		.0050	.0200		.0040	.0100		
Axe	LMRR149/43		Tin Bronze	Cu	+	5/10		+		+						+		+
Tweezers	LMRR211/8		Copper	Cu	+			+		+						+	+	++
Tweezers	LMRR619/22		Tin Bronze	Cu	+	5/10		+		+						+		+
Tweezers	LMRR619/23																	
Tweezers	LMRR619/24																	
Tweezers	KAL8/24																	
Misc.	M50		Copper	98.00				.1700	.0052	.2000			.0200		.0050	.0100		
Misc.	LMRR151/71																	
Misc.	LMRR211/25																	
Misc.	KAL5/14																	
Misc.	KAL5/15																	
Misc.	KAL5/17																	
Fragment	M32																	
Fragment	M35																	
Fragment	M46																	
Fragment	M59		As. Copper	95.00	.1800		.0030	.5100	.0100	.0100		.0100	3.000		.0100	.0300		
Fragment	M65																	
Fragment	M66																	
Fragment	LMRR151/77		Copper	98.00		.2000	2.900	.0100	.0500	.0800	.1300	.1500			.0100	.0600		
Axe	LN6294																	
Knife	1957.21		Tin Bronze	89.00	.1600	10.00	.0300	.1500		.0400		.0040	.0700		.0070			
Spearhead	1957.22		Copper	99.70		.100*	.0090	.1100		.0300					.004*		.005*	
Armlet	1957.23		Copper	99.60	.020*	.100*	.0065	.0500		.0450			.100*		.004*		.005*	
Armlet	1957.24		Copper	99.80		.100*	.005*	.0120		.0150					.004*		.005*	
Razor	1957.26		Copper	99.50	.020*	.100*	.0078	.1900		.0490			.100*		.004*		.005*	
Toggle Pin	1957.27		As. Copper	97.80	.020*	.100*	.005*	.0260		.0510	.010*		1.960		.004*		.005*	
Toggle Pin	1957.28		As. Copper	95.70	.020*	.100*	.0080	.1900		.0290	.010*		3.920		.004*		.005*	
			As. Copper	95.70	.020*	.100*	.0078	.1900		.0270	.010*		3.920		.004*		.005*	



\+ indicates trace
++ indicates 0.02/0.04%
* indicates less than

Table 2 . Analyses of metal objects.

		Cu	Pb	Sn	Ag	Fe	Sb	Ni	Au	Co	As	Cd	Bi	Zn	Mn
Knife	.1957.21	98.0			.080	.600		.050			.050		.015		.006
Spearhead	.1957.22	100.			.010	.300	.002	.050			.020		.020		.004
Armlet	.1957.23	99.0			.018	.400	.005	.020			.005		.025		.003
Toggle pin	.1957.28	97.0			.015	.300	.003	.025		.010	3.30		.005		.004

Table 2a. Analyses of metal objects from Vasilia.

Flat axe	T.161.NO.48	100.			.010	.400	.003	.180			.500		.015		
Flat axe	T.161.NO.45	98.0	(xx)	(1.0)	.010 (xx)	.350	.005 (xx)	.170 (.1)			.600 (.2)		.002		
Scraper	T.111.NO.51	95.0	(x)		(xx)	.200	.005	.100 (.2)			3.50 (2.0)				
Knife rivet	T.161.NO.43	98.0	(xx)	(0.05)	.025 (xxxx)	.200 (xxxx)	.025	.200 (xxxx)			2.00 (xxxx)			(x)	
Knife blade	T.161.NO.43	99.0			.010	.120 (x)	.005	.040			.200			(xxx)	
Spearhead	T.161.NO.46	95.0	(x)		.003 (xx)	.150	.005 (xxx)	.220 (x)		.005	4.10 (0.5)		.005	(5.1)	
Pin	T.131A.NO.62	93.0			.003	.150	.010 (xxx)	.060		.015	6.20 (0.2)		.005	(7.1)	
Knife	T.111.NO.53	98.5			.030 (xxx)		.010 (xxx)	.010			.300 (.1)		.005	.100 (x)	
Dagger	T.143.NO.32	90.5	.300 (xx)	7.10 (11.0)	.045 (xxxx)	.700	.017 (x)	.010			.800 (.2)		.002	.060 (3.0)	

Table 2b. Vounous Bellapais. Figures in parenth sis are Desch's spectrographic results: xxxx element present in analytical quantity; xxx heavy trace of element present; xx trace of element present; x faint trace present.

No.	Total weight	Whorl gr.	Spindle gr.	Diameter cm.	Height cm.	Diam. of hole min. mm.	max. mm.	Length spindle cm.	Max. diam of spindle cm.
1	28	ca.20	ca. 8	5.5	1.25	ca.8	ca.8	L.pres.20	0.8
2	43	32	11	5.4	2.6	7.5	9	24.8	1.5
3	40	22	18	5.8	2.0	11	11.8	30.2	1.5
4	47	25	25	5.5	2.4	11.4	11.8	29.8	1.2

Table 3. Contemporary spindle whorls from Episkopi Village.

STRATIFIED COMPLETE OR NEAR COMPLETE SPINDLE-WHORLS FROM SETTLEMENT A

TC No.	Type	Height cm.	Diameter cm.	Diam. of hole Top mm.	Bottom mm.	Weight gr.	Provenance
156	1a	4.6	4.4	9.5	10	78	Rm. 20
140	1c	4.4	4.6	11.6	12.2	95	Rm. 25
95	1a	4.4	4.7	9.6	?	79	Area 21
123	1a	?	4.6	?	?	?	Rm. 25
153	1b	4.2	4.5	7.6	8.6	?	Area 25
117	1b	4.2	4.3	9	9.1	?	Area 25
118	1a	4.1	4.4			74	Area 25
124	1a	4	4.4	10.5	11.4	73	Rm. 8
45	1a	4	4.2	9.1	9.3	70	Area 24
58	1a	4	4	9.3	10.2	63	Rm. 13
79	1b	3.8	4	8.9	9.1	50	Rm. 18
86	1a	3.8	3.9	9	9.9	49	Rm. 2
137	1b	3.7	4.1	8.5	8.7	55	Rm. 17
77	1b	3.7	3.9	8.6	9.4	48	Rm. 18
97	1b	3.7	3.9	8.3	8.4	42	Area 25
157	1b	3.6	4	8.8	9.1	47	Rm. 10
152	1a	3.5	4.1	8.5	9	57	Rm. 10
83	2b	3.5	3.9	8	8.6	37	Rm. 2
56	1a	3.4	3.6	8.3	8.3	41	Rm. 13
155	1b	3.4	3.6	7.2	7.4	?	Rm. 19
90	1b	3.4	3.6	8.2	8.4	36	Rm. 7a
122	1b	3.3	3.6	9.4	10	35	Rm. 8
148	2a	3.3+	3.8	8.5	9	?	Rm. 12
159	1a	3.3	3.5	?	8.7	?	Rm. 10
85	1b	3.2	3.7	7.4	7.6	?	Area 25
59	1b	3.2	3.4	7.7	8.3	29	Rm. 2
107	1c	3.2	3.7	8	8.4	?	Rm. 15
52	1a	3.2	3.7	9	9.1	36	Rm. 11
34	1a	3.2	3.4	9.1	9.5	31	Rm. 9
42	1a	3.2	3.3	9	9.1	30	Rm. 8
75	1b	3.2	3.2	8.5	8.5	27	Rm. 18
128	2a	3.1	3.4	8	8.6	32	Rm. 8
121	2b	3.1	3.3	7.6	8.6	24	Rm. 18
44	1b	3.1	3	6.4	6.6	21	Rm. 3
91	1b	3	3.2	7.6	7.9	23	Rm. 7a
35	1b	3	3.2	8.6	8.8	24	Rm. 13
57	2b	2.9	3.3	9.8	10	24	Rm. 13
161	2b	2.9	3.3	8	8.5	25	Rm. 12
69	2b	2.9	3.2	8	8.5	23	Rm. 2
160	1b	2.9	3.1	8.9	8.9	23	Rm. 27
92	1b	2.8	3	8	8.7	19	Rm. 7a
94	1b	2.7	2.8	6.4	6.6	26	Rm. 7a
40	1c	2.7	3.2	7.5	8	?	Rm. 13
125	2b	2.6	3.2	7.2	7.5	21	Rm. 19
(154*	1a	2.4	2.7	7	7.3	?	A22 5)

* Unstratified

Table 4

PROVENANCE OF STRATIFIED INCOMPLETE SPINDLE-WHORLS FROM SETTLEMENT A,
NOT INCLUDED IN TABLE 4

TC 43	Rm. 13
TC 84	Rm. 2
TC 93	Rm. 7
TC 104	Rm. 3
TC 162	Rm. 25
TC 180	Rm. 26
TC 197	Rm. 7
TC 102	Rm. 19
TC 115	Rm. 17
TC 120	A17 5*
TC 181	Rm. 19
TC 100	Rm. 3
TC 16	Rm. 12

* Stratification questionable.

Table 6

	Kafkalla	Balies	Kaminoudhia	Mandra tou Pouppou	Shilles	Stympouli	Alatomi	Beyouk Tarla	Kannavokambos	Livadhia	Kolokos	Peralijithias	Ambelovounos	Phaneromeni A & G	Total
Axe No.1	1		1					2		1		2		2	9
Axe No.2														3	3
Axe No.3										1				2	3
Axe No.4										1				3	4
Adze, chisel			1	1?								1		3	6
Rubber-pounder	9	2	6		8	5	4	16		11		16	2	39	118
Rubbing stone	7				1	2	1					1		18	30
Grinder-pounder	14		4			3		2		1				28	52
Pounder	26		11		1	1	5	12	1	8		4		35	104
Pestle														3	3
Hammerstone												1		17	18
Pecking stone	1		5					4		1		6		25	42
Whetstone			2		1					1		2		10	16
Mace-head												1		10	11
Spindle whorl														4	4
Perf. stone	10									3		6		19	38
Pers. ornament			1											37	38
Weight whole						2		2		1		1		12	18
Tethering stone						6	1	8			1	1		6	23
Bowl												1		1	2
Mortar				3	2	6	4	6		1		1		29	52
Basin or trough							1	9		1		5		3	19
Pedestal basin						6	2	1					1	3	13
Saddle quern No.1	36	3	3		10	18	13	27	1	12	5	9	3	12	152
Saddle quern No.2	70	6	33	1	35	18	36	29		32	7	24	2	30	323
Jar cover?	2					1		1		1		2		4	11
Pivotstone	1						1	3						1	6
Threshold						2						3			5
Miscellaneous			1			5	1	5		1		4		9	26
Various games?												3		1	4
Game, Zenet No.1	4			1	3	6	2	17		3		13		31	80
Game, Zenet No.2								6		1		4		4	15
Game, Mehen						2	1	1				1		9	14
Total	181	11	68	6	61	83	72	151	2	81	13	112	8	413	1262

Table 7 . Frequency chart of lithic artifacts.

		(Chalco. III) R.P. (Philia)	Dark R.P.	R.P. I South Coast	R.P. III	Black Top Bowl	R.P. III Mottled	Blue Core	Episkopi	R.P. IV	Coarse	Misc.	Total sherds or vessels	Total %
I	Trapezi Cem.	50	50										4+	100
	Kaminoudhia Cem.	40	14.5				40	1.7				4	118	100
	Kaminoudhia Set.	4	21.5				25				1.5	48	200	100
	Kannavokambos Cem.		14.5	1	39.5		3	10		1		30	89	99
II	Amolo Cem. C			36	38		15	2			2	2	78	99
	Ambelovounos Cem.			26	34		36	3.6					56	99
	Amolo Cem. A			6	65		24	25				1.5	190	99
III	Amolo Cem. B			3	37		41	12			5	8	185	100
	Stympouli Cem.			3	39		33	24					33	99
	Mandra tou P. Cem.			2	4.3	2	30	48	2	6.5		2	46	99
	Alatomi Cem.				14	3	46	36					67	99
	Alatomi Set.				3		38	25	2?		5	26	87	99
	Balies Set.				7		72	3	11	0.6	6		170	99
IV	Stympouli Set.				5	0.3	52	18		2	20	2.5	160	100
	Kafkalla Set.						11	32	1	4	36	16	81	100
	Kafkalla Cem.				7		60	10	6	3	4	9	286	99
	Beyouk Tarla Cem.				13	5	41	26	0.3	9	2	4	275	100
	Beyouk Tarla Set.				2		43	11	2	10	21	11	217	100
	Peralijithias Set.				3		40	14	0.9	6	11	25	228	99
	Livadhia Set.				8		31	33	2	7	12	6	189	99
	Kolokos Set.				5		20	25		10	40		20+	100
	Mandra tou P. Set.						20	15.5	13	11	13	26.6	45	99
	Shilles Set.						14	27		20		39	131	100
	Phaneromeni Set. G				4.5		59	3	10.5	1.2	14	8	3275	100
	Phaneromeni Set. A			0.03	0.7		2.7	8.4	37	35	11.6	4.2	50953	99
	Phaneromeni A (Surf.)						5	26	25	32		12.7	143	100

Table 8 . Pottery chart with percentages of the most common wares. (+ Small, unreliable sample)

Ware	RP I S C	RP III	RP III Mot	RP IV		Episkopi				Blue Core				WP	Coarse	R on Black	Pto WS	Misc	TOTAL
Decoration					I		I	R	I/R		I	R	I/R						
Body open		109	594	1243	92	10885	345	6	2	350	83	1	1	41	5827	15	151	2129	
Body closed	15	276	705	14194	1426	3093	797		2	2223	1053	18	14	121					
Sml. bowl		?6	27	87	7	2702	86		2	54	4	1							
Lge. bowl			19	3		65	2		1										
Jug			7	60	22	25	13			11	3								
Juglet				12		11	5		1	14	9	1							
Jar/amphora			8	151	14	48	10			42	17								
Cook pot			1	42	3														
Store jar			1												75				
Round base				9		10	4			1									
Flat base				1		8													
Other (Handles etc)			16	459		751				210									
TOTAL	17	391	1378	16260	1564	17598	1262	6	8	2905	1169	21	15	162	5902	15	151	2129	50.953
PERCENTAGE	0.03	0.76	2.70	34.98		37.04				8.38				0.31	11.58	0.03	0.3	4.17	100.2

Table 9 . Distribution chart of all stratified sherds from Episkopi Phaneromeni, Settlement A

Ware	R.P. III Mot.	R.P. IV	Episkopi	Blue Core	Coarse	TOTAL
Sml. bowl	0.73	2.59	76.2	1.9		
Lge. bowl	0.51	0.08	1.85			
Jug	0.19	2.23	1.03	0.38		
Juglet		0.32	0.43	0.65		
Jar/amphora	0.21	4.5	1.58	1.61		
Cook pot	0.02	1.22				
Store jar	0.02				2.04	
TOTAL	1.68	10.94	81.09	4.54	2.04	100.29

Table 10 . Relative percentage of the 3.661 vessels recorded at Episkopi Phaneromeni, Settlement A

Ware	R.P. I S.C.	R.P. III	Bl. top bowl	R.P. III Mot.	R.P. IV	Episkopi	Blue Core	Dark R.P.	TOTAL
Sml. bowl	1(0.3)	?1(0.3)	16(4.8)	104(31.3)		6(1.8)	3(0.9)	3(0.9)	
Lge. bowl				24(7.2)					
Jug	2(0.6)	21(6.3)		11(3.3)	10(3)		6(1.8)		
Juglet	1(0.3)	1(0.3)		2(0.6)			8(2.4)		
Jar/amphora	8(2.4)	38(11.44)		42(12.65)	1(0.3)	1(0.3)	16(4.3)	1(0.3)	
Deep bowl	6(1.8)								
TOTAL	18(5.1)	60(18)	16(4.8)	183(55.1)	11(3.6)	7(2.1)	33(9.4)	4(1.2)	332(99.3)

Table 11 . Totals and relative percentages of the 332 vessels recorded by the Kent State University Survey
Percentages in parenthesis

Label for configuration plots	Final configuration		
		1	2
Kaf (Kafkalla)	1	-.446	1.362
Bal (Balies)	2	-.139	-1.263
Kam (Kaminoudhia)	3	1.307	-.133
Sty (Stympouli)	4	.204	-.773
Al (Alatomi)	5	.595	-.646
BT (Beyouk Tarla)	6	-.082	.999
Liv (Livadhia)	7	-.270	.366
Per (Peralijithias)	8	.147	.357
PhG (Phaneromeni Settlement G)	9	- 1.338	-.205
PhA (Phaneromeni Settlement A)	10	.023	-.064

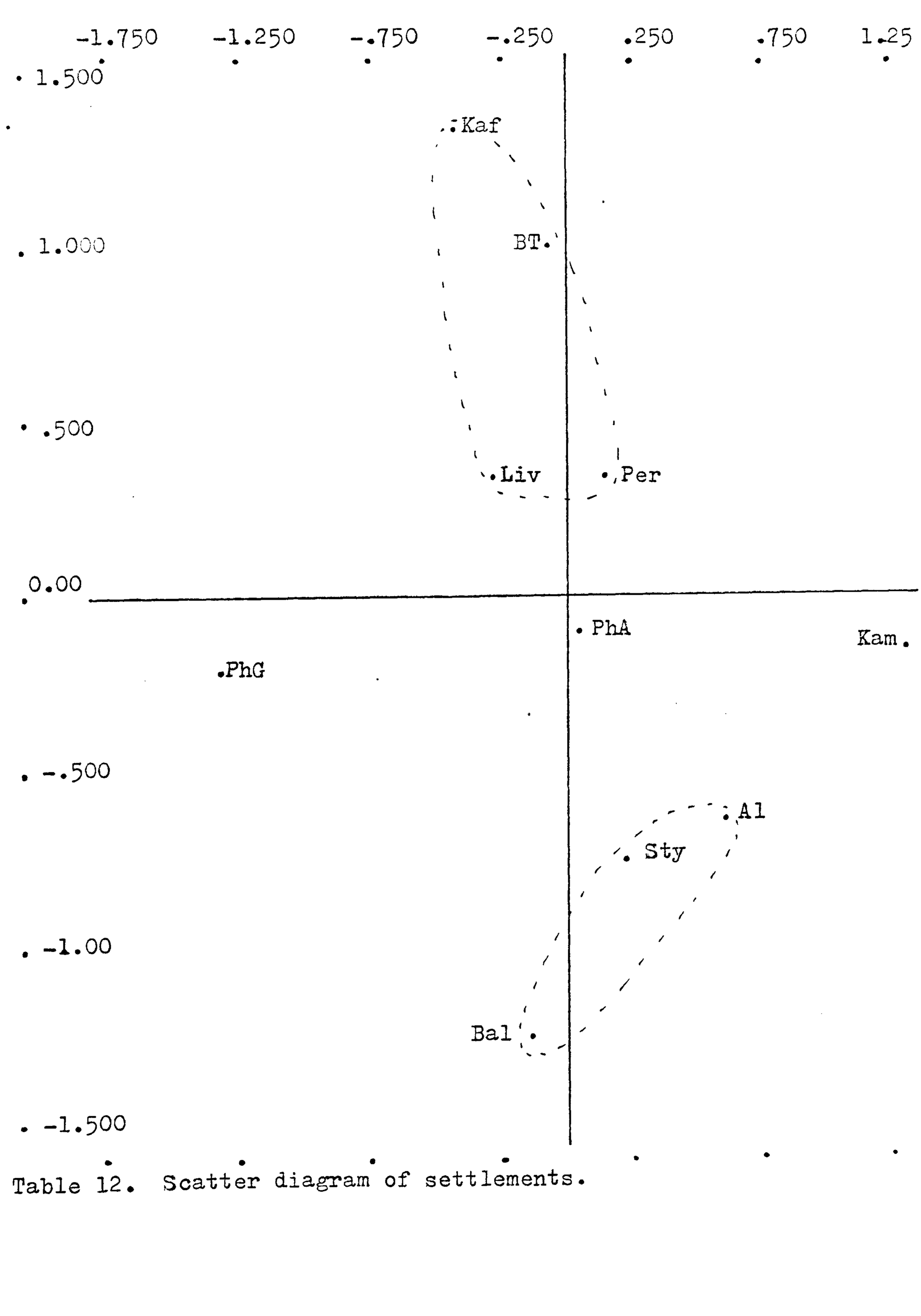


Table 12. Scatter diagram of settlements.

Kaf	1	-.257	-.972
Kam	2	.501	1.417
Amolo A	3	.857	.791
Amolo B	4	.313	-.171
Amolo C	5	.125	.601
Sty	6	.515	-.046
Alt	7	.521	-.807
BT	8	-.228	-.458
Kan	9	-.387	.756
PhG	10	-1.622	-.148
PhA	11	-.338	-.963

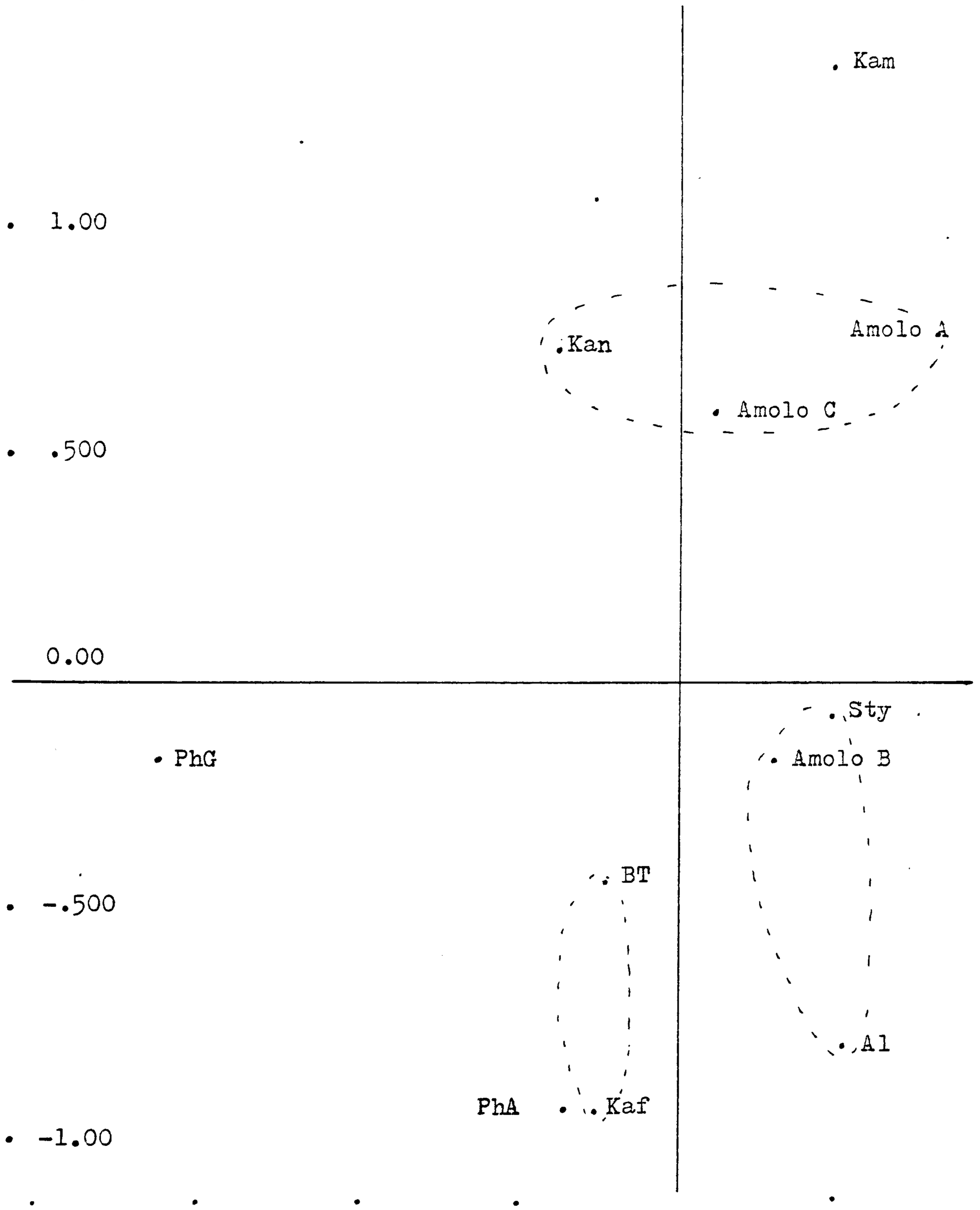


Table 13 .Scatter diagram of cemeteries.

		1	2
Kaf Cem	1	.249	.314
Kaf Set	2	-.600	1.440
Bal Set	3	1.029	-.112
Kam Cem	4	-.945	-1.635
Kam Set	5	.937	.964
Amolo A	6	-.264	-1.519
Amolo B	7	.120	-.519
Amolo C	8	-.516	-.763
Sty Cem	9	.138	-.730
Sty Set	10	.562	.063

		1	2
Alt Cem	11	.648	-.476
Alt Set	12	.602	.122
BT Cem	13	.216	-.087
BT Set	14	-.290	1.159
Kan Cem	15	-.742	.513
Liv Set	16	-.185	.513
PL Set	17	-.047	.661
PhG	18	-1.089	.475
PhA	19	.184	.431

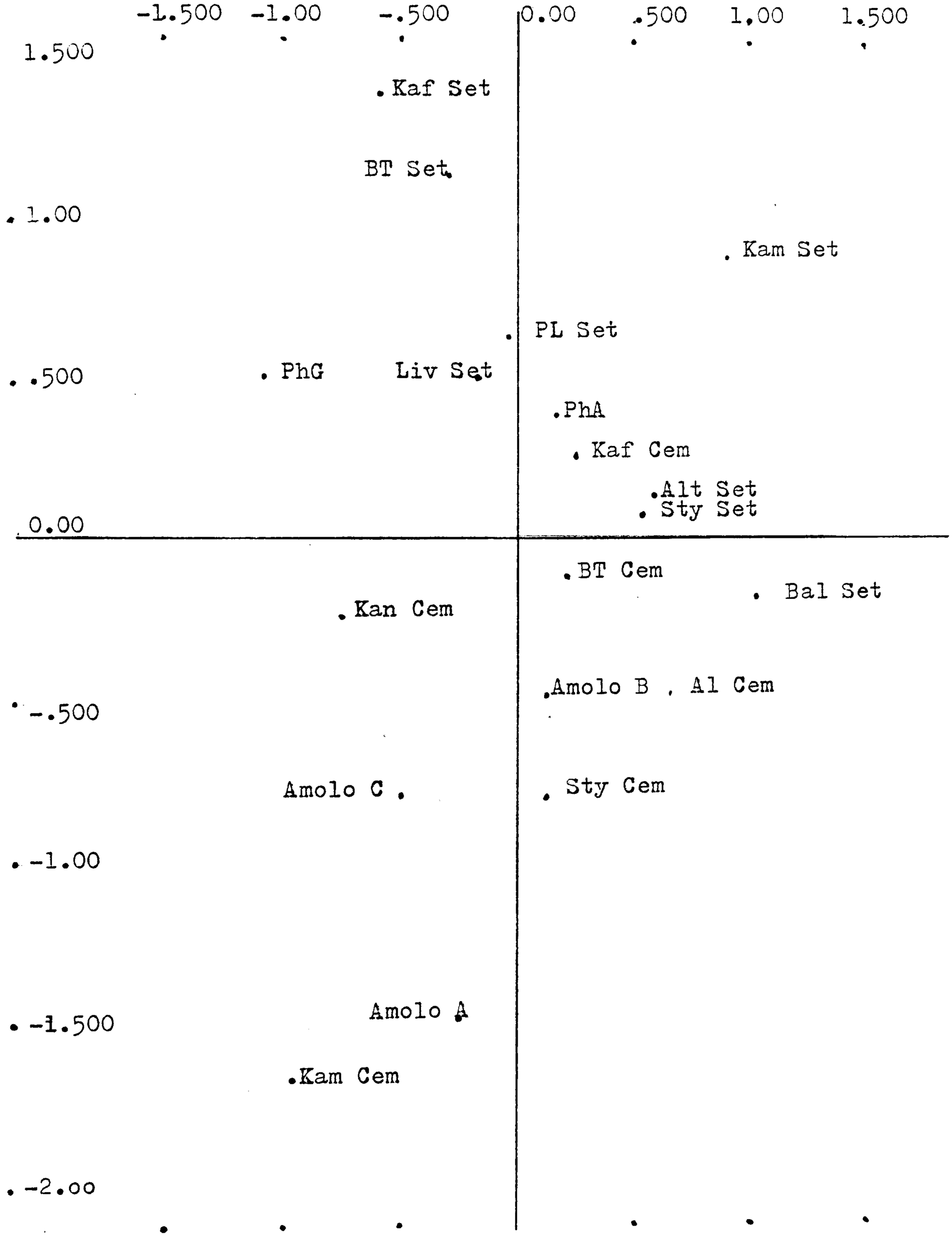


Table 14 . Scatter diagram of settlements and cemeteries.

ABBREVIATIONS

Journals and Publications

AJ	Antiquaries Journal
AJA	American Journal of Archaeology
An Stud	Anatolian Studies
BCH	Bulletin de Correspondance Héllenique
BJV	Berliner Jahrbuch für Vor- und Frühgeschichte
BSA	The Annual of the British School of Archaeology at Athens
CAH	Cambridge Ancient History
CRAI	Académie des inscriptions et belles-lettres. Comptes rendus
IEJ	Israel Exploration Journal
ILN	Illustrated London News
JEA	Journal of Egyptian Archaeology
JHMS	Journal of the Historical Metal Society
JHS	Journal of Hellenic Studies
Op Ath	Opuscula Atheniensia
RDAC	Report of the Department of Antiquities, Cyprus
SCE	Swedish Cyprus Expedition
SIMA	Studies in Mediterranean Archaeology
ZDPV	Zeitschrift des Deutschen Palästina-Vereins

Pottery

Bl. C.	Blue Core
B.R.	Base Ring
D.P.	Drab Polished
D.R.P.	Dark Red Polished
Proto W.S.	Proto White Slip
R.P.	Red Polished
W.P.	White Painted
W.S.	White Slip

Other

B.A.	Bronze Age
E.C.	Early Cypriot
M.C.	Middle Cypriot
L.C.	Late Cypriot
E.B.A.	Early Bronze Age
M.B.A.	Middle Bronze Age
L.B.A.	Late Bronze Age
CHM	Curium House Museum
LM	Limassol Museum
PM	Paphos Museum

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CATALOGUE OF LITHIC ARTIFACTS FROM EPISKOPI PHANEROMENI (EXCLUDING CHIPPED STONE)

All measurements are in centimetres unless otherwise stated.

D = Diameter
L = Length
W = Width
Th = Thickness
Surf= Surface find

The following terms are synonemous:

Pecker and Pecking stone
Quern and Saddle quern
Rubber and Rubbing stone

S2 Surface. Rubber pounder. Type 1. Andesite. L:14.3; W:7.8; Th:6.7. Intact. Quadrangular. Ends rounded. Sides smooth from rubbing, ends rough from pounding.

S3 Surface. Stone quern. Type 1. Andesite. L:42.4; W:33.0; Th:27.0. Incomplete. Broken unevenly across width and down one side. Sides and top smoothed and rounded by working. Top is worn from use.

S4 A1 3. Pounder. Type 3. Andesite. D:6.6. Intact. Spheroid. Several areas pitted.

S5 G Surf. Stone axe. Type 2. Andesite. L:14.0; W:6.3; Th:4.3. Edge worn. Triangular. All sides smoothed and rounded by working. Cutting end well smoothed. Butt worn and chipped.

S7 G Surf. Stone mortar. Type 2. Stone. L:25.0; W:18.5; Th:7.3. Damaged. Very rough surface. Light greyish limestone. Depression hollowed out of top; rounded bottom and sides. Chipped and broken along edges.

S8 G Surf. Mortar. Type 4. Stone. L:35.7; W:14.9; Th:11.0. Intact. Roughly triangular. Fairly coarse surface. Pale, grey limestone. All sides rounded and smoothed by working. Depression hollowed out of larger end. Small chip broken from hollowed end.

S9 C1 10. Pounder. Quartzite and andesite. D:8.3; Intact. Spheroid. Off-white with one grey (andesite) patch. All surfacespecked.

S10 Room 13. Macehead. Type 2. Limestone. H:5.4; D:4.8; D(hole): max.2.2, min. .60. Broken. Cylindrical with biconical perforation. Fine texture. White. Scratch marks visible on sides. Drilling incomplete.

S11 T25 1. 177 beads. Quartz and calcite. D:2.50 mm. to 3.0.mm. Intact. See Description p.29 (Material) and (Description).

S12 Room 9. Perforated stone (hammer). Type 2. Andesite. D:7.2; D(hole) max:3.5; min.:1.5; Th:2.7. Damaged on one side. Discoid. Roughly circular with hole pecked. Biconical perforation through centre. Rare intact example of a perforated stone from Phaneromeni. Signs of wear on circumference prove it was used as a hammer. Circumference smoothed and rounded.

S13 T23B. Pendant. Serpentine (Antigorite). H: 1.4; W: 0.9; D(hole) 0.15. Intact. Rectangular with rounded top and hole drilled from one side through top. Edges flattened and smoothed. Pale blue with darker blue, green and white veining. Scratch marks on front and back from working. Polished highly.

S14 T24b 1. Whetstone. Type 2. Limestone. H: 19; W:3; Th:1.3; D(hole): .7. Intact. Flat rectangular, tapering at the top; off centered hole, drilled on both sides, at tapered end. Hard, fine, smooth, grey. Lower third of one side worn from use. Small chip on side near bottom.

S15 T23D. Beads (10). Quartz and calcite. D:2.50 mm. to 3.0 mm. Two broken. See description of S11.

S16 T22A 1. Button or toggle. Type 1. Serpentine (Antigorite). H:7.5; D:3.6; D(hole) 11.5 mm. Intact. Depressed conical. Slightly conical with hole drilled from one side through centre; flat bottom. Top surface highly polished. Pale blue with green and darker blue veining. Undecorated.

S17 A12 1. Pendant. Type 1. Serpentine (Antigorite). H:4.1; W:1.75; Th:0.8; D(hole): max. 0.60, min. 0.30. Repaired. Oblong and flat with biconical perforation. Medium aqua blue with a few flecks of white. Polished.

S18 Room 14. Whetstone. Type 3. Limestone. L:8.1; W:2.1; Th:1.4. Intact. Oblong. Broad end has a drill hole on top, and another to one side. Fine texture. Grey.

S19 Room 22. Gaming stone (Zenet Type 1). Limestone. L: 24; W: 41; Th: 8. Intact. Flat, trapezoidal with rounded corners. White. All surfaces smooth. Three parallel rows of ten shallow depressions. The central row has an intercalary 11th depression of smaller dimensions. (This was certainly an error of manufacture.) Two larger shallow depressions at one side.

S21 Room 13. Zenet Type 1. Limestone. L:32; W:18; Th:8. Intact. Trapezoidal, somewhat flattened, with rounded corners and edges showing evidence of pecking. Coarse, rough, whitish. Same pattern as S19 but with a single larger oval depression in one corner.

S22 A13 2. Whetstone. Type 3. Limestone. L:6.0; W:1.5; D(hole) 0.7. Intact. See description of S18.

S23 A16 2. Whetstone. Stone. L:8.5; Th:1.7; Fragmentary. Triangular in shape, one edge has worn area. One end only preserved. Hard fine smooth greenish-grey stone, with darker bands at one end.

S24 T23E. Earrings. Serpentine (Antigorite). a) L:4.5; W: .6; b) L:4.8; W: .7. Intact. Flat, rectangular shape with a hole, drilled from both sides, at one end. Green.

S25 T23E. Earrings. Steatite (Antigorite). a) L:4.9; W: .7; b) L:5.3; W: .7. Intact. Flat rectangular shape with a hole, drilled from both sides, at one end. Green.

S34 A10-A2 1. Grinder pounder. Andesite. 9 x 6.5 x 3 cm. Incomplete. Ca. 1/5 remaining. Probably spheroid. Alternating ground and pecked surfaces, "tennis ball" pattern.

S35 Room 3. Pendant. Serpentine (Antigorite). 4 x 2.7 x 0.3. Intact. A thin (0.3 cm) piece of serpentine carved in the form of a pendant with a hole piercing the smaller end. Along the bottom edge of the larger end are six shallow notches. The colour varies from light brown to black on one side. The latter is probably caused by burning.

S36 T23E. Beads. Calcite quartz. Outer diam:0.3; depth:0.1. Good. 1086 small beads strung to a length of 0.7 m.

S37 Room 15. Perforated stone hammer. Type 2. Limestone. D:4.5; Th:3. Intact. Asymmetrical. Roughly conical. Several flattened surfaces. Fine texture. White. Biconical drilled perforation.

S38 Surface. Rubbing stone. Type 1. Andesite. L:13.5; W:8; Th:4.8. Fragmentary. Roughly conical, with two flattened sides. Both faces smooth from rubbing.

S39 G Surf. Rubber pounder. Type 3. Andesite. L:13.3; W:11; Th:4.6. Intact. Oval with flattened ends. Concave, well smoothed working surface. Ends rough from pounding.

S40 Room 15. Grinder pounder. Andesite. L:7.3; W:6.5; Th:6. Intact. Spheroid, two flattened surfaces. Both faces smooth from grinding, circumference rough from pounding.

S41 Room 15. Macehead? Type 1. Andesite. L:7.4; W:6.2; Th:5.8. Intact. Almost perfect ovoid. Ends flattened by pecking. The surface has been intentionally ground smooth. Two concave pecked depressions at either end measuring 1.5 and 2 cm.

S42 Room 3. Grinder pounder. Type 2. Andesite. L:6.5; W:6.3; Th:5.0. Intact. Spheroid, two flattened surfaces. Both faces smooth from grinding, the circumference rough from pounding. One of the grinding surfaces pitted through use as a hammer.

S43 Room 8. Pecking stone. Chert-quartz. H:2.6; D:4.9. Fragmentary, ca. 1/3 remaining. Hemispherical. All surfaces pecked.

S44 Room 3. Grinder pounder. Type 2. Felsite. D:6.3; H:4.5. Intact. Thick discoid. Both faces polished from grinding, circumference rough from pounding.

S45 Findspot Wall J. Hammerstone. Grano-diorite. L 6 x 5 x 5. Intact. Roughly pyramidal. One side used as a hammer (well pitted).

S47 Room 15. Rubbing stone. Type 1. Limestone. L:9; W:4.8; Th:3.5. Fragmentary. Elongated, one end rounded, the other broken. Fine texture. Surface flattened from rubbing.

S48 Room 15. Hammerstone. Andesite. L:6.9; W:6; Th:4.6. Intact. Irregular ovoid. One side round and smooth, the other concave and pitted.

S49 G Surf. Pounder. Type 1. Andesite? L:14; W:6.6; Th:6.3. Intact. Sub-rectangular. Transverse section square. One end rounded, the other naturally bevelled. Bevelled end slightly worn, the other very worn from pounding.

S50 G Surf. Rubber pounder. Type 1a. Andesite. L:18; W:7.6; Th:6.8. Intact. Elongated, transverse section triangular, both ends flattened. One side flattened and smooth from rubbing, both ends rough from pounding.

S51 G Surf. Grinder pounder. Andesite. L:7.7; W:7.3; Th:6.3. Three areas chipped. Spheroid, one side flattened, the others chipped. Flat surface ground, the rounded edges pitted from pounding. Probably had "tennis ball" pattern before being damaged.

S52 G Surf. Perforated stone (hammer). Type 1. Limestone. L:12; W:9; Th:4.5. Fragmentary, ca. 1/2 remaining. Discoid. Buff, medium hard; rough surface. Drilled (?) hole (ø ± 2 cm.) off centre. No obvious signs of wear on the circumference.

S53 Surface. Stone weight ? Barrel shaped. Andesite. L:18; D: .8. Fragmentary. Cylindrical with convex sides. One end missing. Carefully shaped and slightly smoothed.

S55 Room 2. Basin. Limestone. L:22.4; H:14.6. Fragment. Small fragment of a large oval basin. Flat bottom both inside and outside. Thickness of rim varies from 2 to 3 cm. Thickness of base around 3 cm. Max. thickness at juncture between base and side 5 cm. Coarse texture. Off-white. Inside uneven and pitted, no evidence of wear through grinding or pounding.

S56 Room 14. Saddle quern. Type 2. Andesite. L:25; W:14.4; Th:7.4. Intact. Roughly oval, one end narrower. Slightly concave working surface. Other side convex.

S57 Room 8. Saddle quern. Type 2. Gabbzo. L:15; W:16; Th:6.7. Fragmentary. Central section of a saddle quern. Longitudinal section concave. Medial section flat. Working surface rough, bottom smooth.

S58 Room 10. Pounder. Type 1. Felsite. L:14; W:5; Th:3.5. Intact. Roughly pyramidal. Smooth surface. Large end slightly pitted from use as a pounder.

S59 Room 9. Adze. Andesite. L:8; W:4.5; Th:2. Fragmentary. Wedge shaped. Cutting edge missing. All surfaces perfectly smooth. Well defined straight narrow butt. Sides and butt slightly flattened. Both faces slightly concave towards edges but flat in middle.

S60 T23d 1. Bead necklace. Calcite quartz. D:2.50 3.0 mm. Intact (with exception of spacer). Disc-shaped, pierced, both ends flat. Basically four colours: black, red, red-brown, grey. One 1/2 black stone spacer - rectangular; two holes. 395 beads have been strung.

S61 Room 2. Axe. Type 3. Andesite. L:13.5; W:7.5; Th:3.3. Intact but unfinished. Roughly wedge-shaped. Rectangular in transverse section. Narrow butt widening towards the semi-circular cutting edge. Area around butt and sides pitted probably as part of shaping procedure. Top and bottom hollow ground. Cutting edge flaked, pecked and chipped. Two depressions at 6 cm. from butt, one on each side.

S62 Room 15. Button or toggle. Type 1. Serpentine. D:3.5; hole D:1; Th.0.4. Intact. Discoid. Pale blue. Surfaces well polished but still showing scratches made when stone was trimmed to its present shape. Seems to have been drilled from top side. Hole slightly off centre.

S63 Room 1. Pounder. Type 3. Andesite. Max. D:4.7: One third missing. Almost perfectly spheroid. Pitted surface, smoothed in places.

S64 Room 13. Rubber pounder. Andesite. L:12.5; Th:4.5. Intact. Elongated, rounded triangular in section. One face smooth from rubbing, ends rough from pounding.

S65 A16 1. Rubber pounder. Type 2. Andesite. L:9; Th:3.5. Intact. Roughly square with rounded corners. Both faces flat. Both faces smooth from rubbing, edges rough from pounding. The middle of each side is pitted through use as a hammerstone.

S67 Room 9. Pecking stone. Quartz. D:5.5. Intact. Spheroid. Slightly flattened in places. Off-white. All surfaces pecked.

S68 Room 9. Pecking stone. Chert. D:5.2; H:5.7. Intact. Spheroid. Several flattened surfaces. All surfaces pecked.

S69 T26. Pecking stone. Chert. D(max.):5.5. Chipped, ca. 1/3 missing. Spheroid. Non-damaged areas pecked.

S70 Room 3. Rubbing stone. Limestone. 8.7; 5.5; 3.1. Fragmentary. Elongated, one end rounded, the other broken. Oval in section. Fine texture. Smooth and flat on one side, rounded and irregular on the other.

S71 Room 3. Quern. Type 2. Diorite ?. L:25.6; W:17.5; Th:5.5. Intact. Roughly oval riverstone, one end narrower than the other. Longitudinal section shows slightly concave working surface and flattish base. Transverse section of working surface is flat. Bottom is smooth, working surface is rough and pitted.

S72 Room 3. Stone weight. Limestone. 13.4; 12.5; 6.5. Intact. Roughly quadrangular riverstone. Sides quite flat and edges rounded. A hole drilled diagonally in one corner from one side to the adjacent edge. The hole is regular in section (and has been executed with competence and care) but might be natural. It would be difficult to drill a diagonal hole such as this. It also increases the amount of material to be removed. One side shows a shallow depression (c. 1.5 cm. D) possibly man-made, and perhaps in preparation for another drilled hole. Weight 1587 gr.

S74 Room 2. Rubbing stone. Limestone. L:22.2; Diam:8.5. Fragmentary. Cylindrical, one end rounded the other broken. Oval in transverse section. Fine texture. Off-white. One surface slightly flattened from rubbing.

S75 Room 2. Saddle quern. Diorite? 34 x 20.5 x 6.3 (middle). Fragment. Broken at both extremities. Working edge very concave in longitudinal section. Bottom flat. In transverse section working edge is slightly convex and bottom is concave. Both sides well smoothed.

S76 Room 2. Rubber. Limestone. L:24.4; W:12.2; Th:5. Intact. Sub-rectangular or wedge-shaped. Fine texture. White. Both faces smooth from rubbing. One end chipped, possibly intentionally.

S77 A10 2. Quern. Type 2. Andesite. L:27.5; W:12.5; Th:5.3. Intact. Riverstone. Working surface in longitudinal section is flat before rising quite sharply at wider end thus forming a saddle quern. Transverse section shows working surface to be slightly concave, and the other side is also concave with apex off centre.

S78 Room 14. Perforated weight. Limestone. L:26.8; W:27; Th:8.7. Intact. Rough slab, ovoid in shape. Both sides quite smooth and flat. Edges rough hewn and irregular. Little care has been taken to produce an even shape. Perforation (max. D:2.6) has been made with a chisel or some other sharp tool but not drilled. Signs of rope wear at top of perforation. Weight 9375 gr.

S79 Room 9. Mortar. Type 1. Limestone. L:24.2; H:15; D(±) 16. Fragment. Roughly crescent-shaped in longitudinal section. One outer surface flattened and smooth. The concave working surface is pitted and shows no sign of wear.

S80 T23d 2. Necklace. Calcite quartz. Total 38 cm. Beads vary in size from 0.2 to 0.3 cm. in diam. and 0.1 to 0.25 in width. 118 beads in all. Spherical, pierced. Red, white and black.

S81 Room 24. Unidentified. Type 4. Serpentine (Antigorite). L:4.4; W:3.6; Th:1.0. Intact. Flattened ovoid, one end flattened, the other rounded. In transverse section has flat sides and rounded edges. Mottled black and green-blue surface, possibly due to burning. Edges ground into flat planes. All surfaces show evidence of working as indicated by the scratch marks.

S82 Room 10. Tethering stone. Limestone. ca. L:64; W:49; Th:22. Virtually intact. Perforation chipped. Roughly squared on three sides, fourth slightly pointed. Pointed fourth side is perforated, perforation hour-glass shaped in section. Max. diam. ca. 12 cm.; diam. of hole ca. 3 cm.

S83 Room 10. Tethering stone. Limestone. ca. L:67; W:?; Th:26. Intact (virtually). Roughly ovoid. Hour-glass perforation at one end. Built into W-K.

S84 T23E 1. Gaming stone (Mehen). Limestone. 62 x 52 (max.)32 (min.) x 9. Intact. Roughly quadrangular slab, possibly man-made. One face (with depressions) slightly concave, the other convex. 3 edges quite regular, the 4th irregular and indented showing a smooth crescentic cut (?) at one corner (possibly one on other side too). The concave side has 40 shallow depressions of different shapes and sizes in a spiral running clockwise. The first 2 on the outside are circular and more pronounced, as is the central depression. There seems to be at least one other depression to one side of the spiral, and the central depression might have 2 smaller ones cut into one side, bringing the number forming the running spiral to 42. Percussion marks visible?

S85 C Surf. Gaming stone (Zenet Type 2). Limestone. L:10; W:8.1; Th:3.5. Fragment. Intentionally shaped, roughly trapezoidal object with three rows of five indentations each. Medium hard, rough texture, buff coloured.

S87 G Surf. Perforated stone Type 1 (Hammer). Limestone. L:12.9; W:6; Th:2.8. Fragmentary.Semi-circular with perforation in centre. Rough surface, one side smooth and slightly concave, the other chipped; medium hard, rounded on sides as if half of imperfect disc with pecked hole of about 1.1 diam. Light buff. No signs of wear in hole.

S89 Room 14. Rubber-pounder Type 2. Andesite. L:9.5; W:7.1; Th:3.4. Intact. Oval. One side smooth from rubbing, both ends slightly worn from pounding. Both faces pitted from use as a hammerstone.

S90 G Surf. Rubber-pounder. Type 1. Andesite. L:14.1; W:8; Th:7. Intact - several small plow chips. Truncated pyramid. Both ends rounded. The three sides smooth from rubbing, ends rough from pounding.

S91 G Surf. Unidentified. Limestone. L:9.2; D:6.6. Intact. Almost perfect ellipsoid. Fine texture. Light buff. Smooth surface. A groove (ca. 2 mm. wide and 1.5 mm. deep) meanders around the circumference. It is tangent to a shallow drill hole (D: 7.5 mm.; depth: 2 mm.)

S95 T23b?(found in fill) Whorl? Serpentine. D:4.5; Th:0.9; D(hole):1.3. Intact. Round, flattened on one side, hole nearly centred, slightly conical, undecorated. Pale buff to grey-blue, brown markings, hard, very smooth and polished. Hole slightly biconical. Might have been a toggle as the flattened shape is unusual for spindle whorls and the ø of the hole would have required a spindle thicker than the norm.

S96 G Surf. Axe. Type 3. Andesite. L:8.3; W:8.2; Th:2.6. Broken at one end, several plow chips. Wedge-shaped, broken clean across one end, sides slightly flattened, several plow chips, intentionally shaped.

S97 Surface. Grinder pounder. Andesite. L:9; W:8.9; Th:5.9. Intact, several small plow chips. Spheroid, flatter on one side, bulged opposite to flat surface. Grinding surface flat and smooth. The other surfaces are lightly pecked. "Tennis ball" pattern.

S98 G Surf. Pecking stone. Chert. L:6.3; W:5.6; Th:5.1. Nearly intact; chipped on one side. Spheroid. All undamaged surfaces pecked.

S100 G Surf. Perforated stone (hammer)Type 1. Limestone. L:11.2; W:5.5; Th:3.8. Fragment, ca. 1/2 remaining. Tyre-shaped, rounded circumference. Biconical pecked perforation ca. 2.4 diam. Rough textured, medium hard, buff coloured. No signs of wear.

S102 A8 1. Perforated stone Type 1 (hammer). Limestone. L:8.1; W:5.9; Th:3.5. Fragmentary. Discoidal, irregular rounded circumference. Rather rough texture, pitted, medium hard. Light buff. Incomplete biconical pecked perforation.

S105 Surface. Perforated stone Type 1 (hammer). Andesite. L:16; W:7.4; Th:3.2. Fragmentary. Re-used quern or rubber. Irregular oval, one side slightly rougher but flattened from use as a quern. Edges rounded with no visible signs of wear. Biconical pecked perforation. Unless object broke before completion, the diam. of hole was unexpectedly small: ca. 1 cm.

S106 T25C 1. Spindle whorl. Serpentine (Antigorite). H:1.5; W:5.1; D(hole):1.1; Th:1.5. Intact, several small chips. Depressed conical, flat bottom. No decoration. Very smooth, slight polish remaining. Pale greenish blue with very pale, almost white veining, hard, very smooth and clean on cone side, one small chip on cone; flat side with white veining, 1/4, large white patch, a few chips. Perforation slightly biconical, i.e. drilled from both sides.

S107 T25C 1. Spindle whorl. Serpentine (Antigorite). L:0.9; W:3.9; D(hole) 1.0. Intact. Depressed conical with vertical hole drilled through centre; circumference of cone irregular. No decoration. Very light bluish-green with brown and black soil incrustation and minute scratches.

S108 T25C 1. Bead. Type 2. Serpentine (Antigorite). H:2.2; W:1.8; D(hole) 0.5. Intact. Perfect ovoid shape with vertical hole drilled through centre. No decoration. Very light grey-blue bead.

S109 T25C 1. Spindle whorl? toggle? Limestone. H:2.0; W:4.2; Th:2.1; ø(hole) 6.1 mm, 6.4 mm. Intact, several chips. (Truncated) conical. Fine texture. Medium brown-grey. Drilled perforation, probably with a metal drill since the diam. of the hole only varies from 6.1 (at top) to 6.4 mm., at bottom.

S110 T25C 1. Bead. Type 1. Serpentine (Antigorite). L:2; W:1.5; D(hole): 0.3. Intact. Biconicalwith hole drilled vertically through centre. No decoration. Pale grey blue.

S111 A16 1. Button or toggle. Type 2. Serpentine (Antigorite). D(disc)3.5; W:0.6; D(hole):0.6. Intact. Nicely worked hole, perfectly flat, circumference a bit uneven. No decoration. Disc of light green-blue.

S113 A30 1. Pestle. Felsite. L:14.5; W5.8; Th:5.0. Intact. Rounded and triangular with horn-like curve, flattened on large end, rounded on smaller end. Large end worn very smooth from use as a pestle.

S116 Room 13. Grinder-pounder. Andesite. L:6.6; W:6; Th:5.9. Intact. Spheroid. Three flattened surfaces. Three areas smooth from grinding, the rest rough from pounding. Rough "tennis ball" pattern.

S118 A2. Pounder. Type 1. Andesite. L:11.5; W:4.7; Th:2.2. Intact. Trapezoidal with rounded, rather blunt ends, flat very smooth bottom. Larger end slightly rough from pounding.

S119 A14 4. Pounder. Type 3. Grano-diorite. L:6.4; W:6; Th:5.2. Intact. Spheroid. Four surfaces flattened by use.

S120 A1 5. Pounder. Type 2. Andesite. L:11.5; W:9.1; Th:5.6. Intact. Triangular, angles rounded. Very smooth surface. Pitted on apex and opposing side.

S121 Room 24. Pounder. Type 3. Andesite. L:7.2; W:7.0; Th:4.6. Intact. Flattened (2 sides) sphere uneven, one large chip off rounded side. Rough surface. Circumference pecked.

S122 Room 9. Pounder. Type 2. Andesite. L:7.8; W:7.6; Th:4.7. Intact. Roughly triangular. Angles rounded. Very smooth surface. All three angles worn from pounding.

S124 Room 3. Pounder. Type 2. Andesite. L:9.3; W:5.9; Th:5.4. Intact. Very roughly trapezoidal, two unevenly rounded ends, four sides roughly squared off. Two sides naturally flat and pitted in their centre from secondary use as a hammer. Ends pitted from pounding.

S125 Room 14. Hammerstone. Andesite. L:7.2; W:6.6; Th:5.7. Intact. Slightly flattened ovoid, evenly rounded, small pitted area, slightly concave on one side. Both ends and sides worked.

S127 Room 2. Rubber. Limestone. L:15.1; W:5.9; Th:3.8. Fragmentary. Rectangular with one rounded end, the other broken, possibly three sides worked. Very light grey. Hard, fairly smooth surface on two sides and part of three, one side and part of another rough; one end smooth, the other rough.

S128 A16 1. Hammerstone. Grano diorite. L:8.7; W:8.2; Th:7.2. Intact. Irregular sphere, concave on worked end, one deep indentation on opposite end. All surfaces pitted.

S130 Room 14. Grinder pounder. Grano diorite. L:7.2; W:6.7; Th:5.4. Intact, a few chips. Irregular spheroid one surface slightly flattened. Flattened side ground, the rest rough from pounding.

S131 A16 2. Rubbing stone. Limestone. L:14.5; W:6.2; Th:4.2. Mostly intact, one end badly chipped. Rectangular, rounded at one end and sides, two large chips off other end, other chips on sides. Medium grey with some brown areas. Both sides smooth from rubbing.

S133 Room 15. Pounder. Type 2. Andesite. L:19; D:7.8; W:7.4. Fragmentary - one end broken off. Roughly conical. All surfaces smooth. Intentionally shaped. Signs of wear through rubbing (sharpening) midway along. Exact usage uncertain.

S134 A26 1. Rubber pounder. Type 1. Grano diorite. L:8.3; W:7; Th:5.5. Intact. Roughly ovoid, flattened on one side and one end. One surface worked - pitted.

S135 Room 4. Rubber. Andesite. L:19; W:11.8; Th:6.8. Intact, large chip at one end. Roughly pyramidal in shape, large chip on small end. Worked side flat from rubbing.

S136 Area 21. Gaming stone (Zenet Type 1). Limestone. L:35; W:15.5; Th:11.0. Intact. Very irregular trapezoid, possibly intentionally shaped, flat on two sides; one side with three rows of indentations: 10 in first row, 11 in second, 10 in third. Rough texture, medium hard, light buff.

S137 Room 13. Gaming stone (Zenet Type 1). Limestone. L:28; W:12.5; Th:6.2. Intact - possibly broken at one end. Trapezoidal with two right angles, flat on both broad sides and on one narrow side, fourth side slightly convex. Three rows of indentation running diagonally: one has 9; middle row has 9; third row has 6 or 7. Very coarse, rough texture, medium hard, light buff.

S138 Room 13. Gaming stone (Zenet Type 1). Limestone. L:32; W:18.5; Th:13.5. Intact. Very roughly triangular, one end broadly rounded, one broad side somewhat convex, the other (containing indentations) nearly flat; ca. 27 indentations in an irregular pattern (possibly spiral?); small naturally formed hole near centre. Rough texture, very irregular rough surface, medium hard, light buff.

S139 Room 18. Toggle. Serpentine (Antigorite). L:2.1; D:0.8. Intact. Slightly flattened cylindrical shape, flattened ends; groove around circumference at centre. Pale bluish green with dark brown markings.

S141 A37 1. Unfinished perforated stone (hammer). Type 2. Andesite. L:5.2; W:4.7; Th:2.9. Intact. Small, discoid. Two diametrically opposed pecked depressions. Probably unfinished perforated stone.

S142 Room 18. Perforated stone (hammer). Type 1. Limestone. L:6.9; W:5.1; Th:4. Fragmentary, ca. 1/4 remaining. Tyre-shaped. Rounded circumference. Medium hard, rough surface. Light grey-buff with some darker brown markings. Biconical pecked perforation.

S143 H3 2. Rubber pounder. Type 2. Andesite. L:12.9; W:9.6; Th:4.2. Intact - one large chip. Oval with flattened ends. Both sides flattened from rubbing, ends flattened and rough from pounding.

S144 Room 4. Quern. Type 2. Andesite. L:27; W:17.5; Th:6.7. Intact. Roughly trapezoidal with rounded ends and corners, rounded sides toward bottom, top edges sharply defined; bottom convex, top concave. One surface worked.

S146 Room 2. Quern. Type 2. Andesite. L:44; W:25; Th:6.2. Intact. Roughly pentagonal in shape - one long side, two shorter sides, rounded convex on bottom, concave on working surface. One surface worked.

S148 Area 25. Unidentified (jewellery?) Type 4. Serpentine. L:5.3; W:4.5; Th:1.1. Fragmentary. Intentionally shaped. Smooth where worked (two sides worked). Blue-green.

S149 Room 2. Pecking stone. Quartzite. D:6.2; Th:3.9. Fragmentary - broken ca. in half. Hemispherical. Non-damaged surface pecked.

S150 Room 2. Unfinished macehead?. Andesite. L:6.1; W:5.8; Th:5.0. Intact. Spheroid. Two opposed concave pecked depressions, at right angles to these two lightly pecked areas. Smooth surface. Are the concave depressions preparatory to drilling, and are the two pecked areas the result of intentional shaping?

S151 A40 1. Weight?. Limestone. L:5.2; W:4.3; Th:4.3. Intact. Barrel shaped. Intentionally shaped. Fine texture, well smoothed surface. Light grey. Ends smoother from rubbing.

S152 H3 3. Pounder. Type 3. Grano diorite. L:6.6; W:6.3. Intact. Slightly flattened sphere. All surfaces pitted.

S153 Room 17. Unidentified. Type 2. Serpentine (Antigorite). L:4.1; D:1.1. Intact. Cylindrical shape with rounded ends. Unfinished piece of jewellery? Intentionally worked. Light blue.

S154 Room 2. Quern. Type 2. Andesite. L:34.5; W:13.6; Th:3.7. Intact, three corners chipped. Long, oval object with slightly concave top, convex bottom. One side worked; intentionally shaped.

S156 G Surf. Rubber pounder. Type 1. Andesite. L:11.8; W:6.9; Th:4.1. Intact - a few small chips. Ovoid, one end thicker. One face flattened by rubbing, both ends rough from pounding.

S157 G Surf. Rubber pounder. Type 1. Andesite. L:11.8; W:6.7; Th:4.3. Intact. Roughly wedge-shaped, rounded ends and sides, one side quite flat. One face well flattened from rubbing, both ends rough from pounding.

S158 G Surf. Pounder. Type 2. Andesite. L:12; W:8.3; Th:5.8. Intact. Triangular. Rounded angles. Smooth surface. Apex and opposite side worn from pounding.

S159 G Surf. Perforated stone (hammer). Type 1. Gabbro. L:12; W:5.9; Th:4.1. Fragmentary, ca. 1/2 remaining. Reused quern or rubber. Probably oval. Biconical drilled perforation. Diam. 2.7 cm. Very rough where broken. Possible signs of wear at one end.

S160 G Surf. Grinder pounder. Andesite. D:7.4; Th:5.6. Intact. Discoid. Both faces smooth from grinding, circumference rough from pounding.

S161 G Surf. Mortar. Type 1. Limestone. L:17.5; W:15.5. Intact. Roughly spherical with one worked surface; large, round, smooth indentation, intentionally shaped. Medium hard, rough texture. Buff coloured.

S162 G Surf. Stone weight with suspension hole. Limestone. L:21.5; W:20; Th:10.3; D(hole):3.3. Intact. Very roughly spherical, chipped on part of circumference, and near hole drilled far off centre. Medium hard, rough texture, possibly intentionally shaped. Buff coloured. Weight 5940 gr.

S163 G Surf. Mortar. Type 1. Limestone. L:36; W:35; Th: 24; D(hole):12. Intact. Spherical, flattened on one side, conical indentation on the opposite side. Intentionally shaped, one side worked. Very rough texture, buff coloured.

S164 G Surf. Anvil. Type 4. Limestone. L:27.5; W:12.5; Th: 12; D(hole):5.1. Intact. Oblong-shaped with rounded edges, one convex end, the other with large indentation (used as mortar?); small area on one side has small indentations in very small area (used as anvil?). Intentionally shaped. Medium hard, very rough texture. Buff coloured. Two sides worked.

S165 G Surf. Mortar. Type 1. Limestone. L:21; W:21; Th:17.5; D(indent.):17. Intact. Spherical with circular indentation on worked side filling nearly entire top of sphere. Medium hard, rough surface, a bit smoother on worked surface. Light buff. One side worked and intentionally shaped.

S166 G Surf. Mortar. Type 1. Limestone. L:38; W:32; Th:13.5; D(indent.):13.5. Intact. Rectangular, nearly square with rounded corners and sides; small, basin-like indentation in top. Intentionally shaped. Rather hard, worked surface, very smooth sides and bottom slightly rough. Light buff. One side worked.

S167 Room 2. Rubbing stone. Type 1. Andesite. L:19; W:7.5; Th:5.3. Intact. Roughly ovoid, triangular in section. Both ends rough from pounding.

S168 Room 2. Hammerstone. Limestone. L:6.4; W:6.1; Th:4.7. Intact. Very regular sphere. Rough surface, light grey. Two, possibly three, pitted indentations.

S169 H3 3. Rubber pounder. Type 1. Diorite. L:9; W:6.7; Th:4.9. Intact. Flattened ovoid. Pitted on ends, sides and one face.

S170 H3 7. Perforated stone (hammer). Type 1. Limestone. L:11; W:6.3; Th:3.8. Fragmentary - about 1/2 of object. Discoid. Unfinished perforation in centre. Medium hard, only slightly rough. Buff coloured. Pecked perforation started from both sides but not completed.

S171 Room 16. Grinder pounder. Diorite. D:5.9; Th:4.5. Intact. Thick discoid. Both faces smooth from grinding, circumference rough from pounding.

S172 Room 16. Gaming stone (Zenet Type 1). Limestone. L:12.6; W:9.8; Th:4. Fragmentary. Roughly triangular containing indentations on both sides: Side 1: Four positive indentations, two others not clear; all fairly deep. Side 2: Twelve indentations - rather shallow. Medium hard, very rough texture. Orange-tan coloured.

S173 Room 7a. Stone weight with suspension hole. Limestone. L:18.4; W:14.4; Th:9.2. Intact. Roughly ovoid, hole drilled through from both sides very close to one edge. Possibly intentionally shaped. Medium hard, very rough surface. Greyish-tan. Weight 3000 gr.

S174 H3. Mortar. Type 2. Limestone. L:24.4; W:18; Th:9.2. Fragmentary, ca. 1/2 object. Roughly rectangular with concave area worked into stone on top. Intentionally shaped. Medium hard, rough surface. Greyish tan. One surface worked.

S175 Room 7a. Pounder. Andesite. L:13.9; W:7; Th:5.8. Intact. Roughly ovoid, triangular in transverse section. One end pitted from use as a pounder.

S176 G Surf. Rubber pounder. Type 1. Andesite. L:25; W:8.8; Th:7.6. Intact - large chip, few smaller ones. Bottle-shaped. Intentionally shaped. Bottom end roughened from pounding, one side flattened from rubbing. One worked end pitted, two sides worked.

S177 Room 7a. Weight. Limestone. L:31; W:26.4; Th:12. Intact. Very roughly triangular with hole drilled from both sides near smallest angle. Intentionally shaped. Medium hard, very rough surface. Grey-tan. Weight 8225 gr. Original estimated weight 8500 gr.

S179 G Surf. Bifacial gaming stone (Mehen - Zenet). Limestone. L:20.3; W:17; Th:5.8. Fragmentary. Sub-rectangular slab. Both faces quite even. Main face with twenty + shallow depressions possibly forming part of a spiral. Other side might have remains of a game: two rows of four holes and one row of three holes, roughly parallel to one another.

S179a G Surf. Axe. Type 2. Andesite. L:10.1; W:5.1; Th:4.1. Intact - small chip on blade end. Wedge-shaped, flattened butt, straight cutting edge. Intentionally shaped. Very smooth on both sides of blade end. Two surfaces worked.

S180 G Surf. Work surface? Limestone. D:58; Th:7.5. Intact - a few chips. Roughly circular. Intentionally shaped. Top surface smooth, bottom rough and pitted. Pale grey-buff. Flaked circumference.

S181 Room 7a. Quern. Type 1. Andesite. L:52.5; W:29.5; Th:18. Intact - a few small chips. Large concavely curved wedge-shaped object; narrow and thin at one end increasing in width and thickness to other end. Intentionally shaped. One side worked.

S182 A3 6. Pounder. Type 3. Grano diorite. L:7.6; W:4; Th:5.2. Intact. Roughly ovoid, worked ends flattened. Both ends and sides worked and rougher than others.

S183 H3 3. Pounder. Type 1. Andesite. L:18.5; W:8.2; Th:6.8. Intact except for one very large chip. Very roughly triangular with well-rounded ends and sides, two sides slightly flattened. Worked. Both ends worn from pounding.

S184 Room 7a. Mortar. Type 3. Limestone. L:11.3; W:9.3; Th:4.8; D(hole):ca. 3.6. Intact. Very roughly ovoid, disc-shaped object, probably shaped and smoothed a bit on top; bottom very rough. Intentionally shaped. Medium hard, very rough surface. Grey-buff. One worked surface (not much evidence of use).

S186 Room 17. Hammerstone. Andesite. L:7.2; D:5.6. Intact. Almost perfectly ovoid; two ends a bit flattened. Two ends worked as well as sides.

S187 C3 1. Rubber pounder. Type 1. Andesite. L:10.1; W:6.2; Th:5.7. Intact - several shallow chips. Roughly wedge-shaped with rounded sides, rounded ends well-defined, smaller end tends to indicate use on two planes resulting in a faceted-like edge. Body ground smooth from rubbing, ends rough and faceted from pounding.

S188 G Surf. Perforated stone (hammer) Type 1. Andesite. L:7.7; W:5.4; Th:3.3. Broken. About 1/2 missing. Oval. Discoid. One flattened surface. One side deeply indented from pecking, the other less so. Incompletely pierced.

S189 G Surf. Perforated stone (hammerstone). Type 1. Limestone. L:13.8; W:6.8; Th:6.7. Fragmentary, ca. 1/2 remaining. Probably oval. Medium hard, quite rough texture. Tan. Two surfaces worked. Incomplete pecked perforation started on both sides.

S190 G Surf. Grinder pounder. Andesite. L:7.8; W:7.6; Th:6. Intact. Spheroid. Two flattened surfaces. The two flattened surfaces smooth from grinding, circumference rough from pounding.

S191 Area A. Whetstone. Type 1. L:10.4; W:2.6; Th:1.5. Intact. Elongated rectangle, ends and sides rounded, one side a bit concave, the other a bit convex. Intentionally shaped. Hard, very smooth surface. Medium dark grey.

S192 G4 2. Button or toggle. Type 2. Serpentine. D:3.5; D:(hole):1.3. Intact - one small chip. Flat with hole drilled vertically through centre; one side has ten larger perforations evenly spaced, the opposite side has eleven smaller perforations evenly spaced; edge of disc has fifteen perforations evenly spaced. Blue-grey with light and dark mottling.

S193 Room 19. Gaming stone (Zenet Type 1). Limestone. L:29; W:26; Th:7.3. Intact. Intentionally shaped. Roughly ovoid; three lines of ten indentations through centre; two larger indentations, one centred on either side of lines. Opposite side has one line of ten small indentations, one shallow large indentation; possibly five other indentations at right angles to first line. Medium hard, very rough surface and coarse texture. Light buff.

S194 Room 19. Gaming stone (Zenet Type 1). Limestone. L:27; W:21.5; Th:6.7. Intact except for some chips on edges. Very roughly triangular; two lines of ten indentations each, a third line four indentations clearly discernible, possibly six more not well delineated; one large round indentation below three lines. Medium hard, very rough texture. Intentionally shaped. Light buff.

S195 G4 1. Jewellery Type 5. Serpentine. L:1.7; W:1.5; Th:0.3. Fragmentary. Flat, thin, rectangular object originally, perforated on each side by three small indentations running slightly diagonally. Intentionally shaped. Grey-green.

S196 Room 17. Grinder pounder. Andesite. L:9.3; W:7.6; Th:6.5. Intact. Hexagonal. Rounded angles. Apex and opposite side worn from pounding.

S198 Room 2. Perforated stone (hammer) Type 2. Limestone. L:5.7; W:5.5; Th:2.3. Intact. Discoid, slightly triangular. Slightly rough surface, rather hard. Light grey-buff. Two diametrically opposed pecked depressions, almost worked right through.

S200 Room 2. Pounder. Type 4. Andesite. L:4.6; W:3.7; Th:2.2. Intact. A flattened ovoid, one side a bit concave, rounded sides and ends. Probably intentionally shaped, possibly one side worked.

S202 Room 3. Unidentified (jewellery (?)). Felsite. L:7.1; W:1.5; Th:1.0. Intact. Long, narrow object with rounded ends, rounded sides, forming a very slight S-curve; two small drilled indentations on one side, one near each end of object.

S203 Room 7. Stone weight with suspension hole. Limestone. L:21; W:11.8; Th:7.1. Intact - many small chips. Roughly ovoid, hole drilled from both sides near edge on longer side. Intentionally shaped. Very rough pitted and chipped surface, medium hard. Grey-tan. Two surfaces worked. Weight 1650 gr.

S204 Room 2. Quern. Type 2. Andesite. L:26; W:13.6; Th:4.8. Fragmentary. Quadrilateral, uneven sides, both ends broken off; concave on one side, convex on the other. Intentionally shaped. Possibly two worked surfaces.

S207 Room 2. Grinder pounder. Quartzite and andesite. L:6.7; W:6.4; Th:4.8. Intact. Discoid. Circumference pecked, both faces somewhat smoother.

S209 Room 2. Hammerstone. Andesite. L:7.4; W:6; Th:5.7. Intact. Roughly ovoid, three sides flattened. Two sides well-pitted, others more lightly worked.

S210 G4 3. Pendant. Type 5. Serpentine. L:5.5; W:4.5; Th:1. Intact. Hard, smooth. Green with brown mottling and veins of white.

S210a A38 11. Jewellery. Type 5. Serpentine. L:2.6; W:1.6; Th:0.5. Fragmentary. Roughly triangular with smoothed off edges, sharp edges where broken; six holes of varying sizes irregularly placed, drilled through from both sides. Light blue-green with a bit of brown mottling.

S211 Room 18. Pestle. Felsite. L:10.9; W:4.8; Th:3.9. Intact. Triangular in shape, rounded sides and corners. Large end worn very smooth from use as a pestle. The other slightly pitted.

S212 H3 3. Pecking stone. Chert. L:7.4; W:6.7; Th:5.6. Damaged. Irregular spheroid. Three surfaces more chipped than others.

S213 Room 18. Macehead. Type 1a. Felsite. H:5.4; D:5.8; D(hole):2. Intact. Nearly perfect sphere with flattened ends, two very slightly flattened areas on opposite sides; large hole drilled directly through centre. Slightly biconical in section.

S214 G4 3. Toggle. Type 2. Felsite. L:2.7; W:2.5; D(hole):0.7. Intact. Slightly irregular disc, hole bored vertically from both sides through centre. Intentionally shaped.

S215 Room 16. Grinder pounder. Andesite. L:7.3; W:6.8; Th:6. Intact. Spheroid. Slightly rough, smoother on worked surface. Three surfaces used for grinding, the others pecked. "Tennis ball" pattern.

S216 Room 16. Mortar. Type 2. Limestone. L:15.8; W:12.5; Th:5.7. Fragmentary. Roughly rectangular, corner not broken is rounded; rounded sides; indentation in top. Intentionally shaped. Medium hard, very rough surface. Grey-buff. One surface worked.

S218 Room 16. Grinder pounder. Andesite. L:5.7; W:5.4; Th:5.4. Intact. Spheroid. Three slightly flattened surfaces. Flattened surfaces smooth from grinding, the remainder rough from pounding.

S219 Room 19. Whetstone. Type 1. Limestone. L:8.6; W:3.5; Th:3.5. Fragmentary. Obelisk-shaped, rounded edges and end, larger end broken off, one side slightly concave. Intentionally shaped. Very fine texture, smooth, medium hard. Grey-buff.

S220 G4 1. Pecking stone. Chert. L:6; W:5.7; Th:5.4. Intact. Spheroid with flattened areas. All surfaces pecked.

S221 Room 16. Grinder pounder. Andesite. L:7.4; W:7.1; Th:5.7. Intact. Spheroid, four flattened sides. Alternating rough and smooth surfaces corresponding to the areas used for grinding and pounding.

S222 G4 1. Unidentified. Type 3. Serpentine (antigorite). L:2.9; W:0.8; Th:0.4. Fragmentary. Small irregular rectangle. Grey with black mottling.

S223 G Surf. Rubber pounder. Type 1. Grano diorite. L:19.8; W:8.4; Th:4.9. Intact - a few chips. Irregular wedge-shaped, transverse section triangular, one side and ends flattened. Flat side smooth from rubbing, ends rough from pounding.

S224 Room 19. Perforated stone (hammer) Type 2. Limestone. L:5.7; D:2.2; D(hole):1.1. Fragmentary, ca. 1/2 remaining. Discoid. Fairly hard, rather fine texture, a bit rough. Light buff. Pecked biconical perforation, 1.1 cm. diam.

S227 Room 3. Mortar. Type 1. Limestone. L:32; W:18; Th:12.8. Broken, restored. Ovoid shape, deep bowl (20 x 11.8 x 8 cm. approx.). Intentionally shaped. Medium hard, rough and pitted surface. Grey to buff. One side worked.

S228 Room 19. Perforated stone (hammer) Type 2. Limestone. L:4; W:2.9; Th:1.9; D(hole): ca. 1.2. Fragmentary, ca. 1/2 remaining. Lozenge shaped? Intentionally shaped. Hard, fine texture and smooth. Medium grey. Drilled conical perforation. Apex worn. Clear signs of wear on apex might indicate usage as a hammer.

S230 Room 19. Hammerstone. Andesite. D:7.4; Th:5.4. Intact. Spherical, a bit flattened on two sides on which are centred opposing small indentations. Entire largest diameter pitted.

S231 G Surf. Gamestone (Zenet Type 1). Limestone. L:14.1; W:7.6; Th:6.2. Fragmentary. Very irregularly shaped fragment: one side contains five complete and one incomplete indentation, forming regular rows and a deep transversally incised line; second side contains three rows of three indentations, a deep transversally incised line, followed by another row of three indentations (incomplete). Two sides intentionally shaped. Rather fine texture, quite smooth surface. Light buff.

S232 G Surf. Gaming stone (Zenet Type 1). Limestone. L:21.5; W:17.5; Th:5.2. Fragmentary (a bit broken off one edge?) Very irregularly triangular; one side contains three parallel rows of indentations; row 1 - ten; row 2 - ten; row 3 - eight, followed by one larger indentation, centred. Intentionally shaped. Fairly fine texture, rough surface, rather hard. Light buff.

S233 G Surf. Gaming stone (Zenet Type 1). Limestone. L:18; W:13; Th:10.2. Fragmentary. Irregularly shaped fragment containing one row of three positive indentations, a second row of five indentations, followed by one (possibly two) larger indentations. Medium texture, rough, chipped surface, medium hard. Buff-coloured.

S234 G Surf. Quern. Type 1. Andesite. L:41; W:25; Th:15. Mostly intact - end broken off. Roughly wedge-shaped, smaller end broken off, larger end rounded. Top side concave, bottom side convex. Intentionally shaped. One side worked.

S235 G Surf. Quern. Type 1. Andesite. L:40; W:30.5; Th:18.5. Intact except for broken end. Roughly wedge-shaped, smaller end broken off, larger end rounded, top side concave, bottom convex. Intentionally shaped. One side worked.

S236 Area 25. Rubber pounder. Type 1. Andesite. L:11.8; W:6.9; Th:5.1. Intact. Roughly wedge-shaped. Body ground smooth from rubbing, one end rough from pounding, with very end smooth from secondary rubbing.

S237 Room 15. Grinder pounder. Diorite. L:6.1; W:6; Th:5.2. Intact. Spheroid. One surface smooth from grinding, the rest rough from pounding.

S238 Area A. Gaming stone (Zenet Type 2). Limestone. L:9; W:7.6; Th:2.8. Fragmentary. Quadrilateral fragment containing three rows of small indentations, five to each row. Intentionally shaped. Fairly fine texture, surface a bit rough. Buff-coloured.

S239 Room 2. Quern. Type 1. Andesite. L:39; W:25.8; Th:18. Intact. Irregular wedge to ovoid shape, ends rounded, top slighly concave; one side of object broken off very clean. Intentionally shaped. Hard. One surface worked.

S240 Room 7? Rubber pounder. Type 1. Andesite. L:11.6; W:6.4; Th:4.9. Intact. Roughly wedge-shaped, rounded sides and ends. One face smooth from rubbing, other faces and ends pitted, the latter from pounding.

S243 Room 18. Mortar. Type 1. Limestone. L:22.5; W:16.3; Th:8.2. Broken, restored. Ovoid, basin-like object, sides roughly rounded; dimension of basin 12.5 x 10.6 x ca. 3.8 cm. Intentionally shaped. Medium hard, rough surface heavily pitted on bottom. Grey-buff. One side worked.

S244 G4 3. Bifacial gaming stone (Mehen Zenet). Limestone. L:32; W:17; Th:6.4. Intact. Quadrangular, one end with right angles, the other rounded off diagonally. Side one - zenet: three straight rows of ten evenly spaced indentations, one large oval indentation above centre. Side two - mehen: an ovoid spiral (fragmentary) containing fifty-one indentations. Intentionally shaped, both sides used. Medium hard, rather rough texture. Light buff. Formerly quern?

S245 G4 3. Pecking stone. Chert. L:6.2; W:6.2; Th:4.4. ca. 1/3 missing. Discoid. All undamaged surfaces pecked.

S246 G4 3. Pecking stone. Chert. L:9.3; W:7.9; Th:6.4. About 1/3 missing. Roughly semi-circular. Difficult to determine how much of surface has been worked.

S247 G4 3. Pestle. Fine grained felsite. L:11.7; W:8.2; Th:8. Intact. Very roughly pyramidal. One end smooth from use as a pestle.

S248 G4 1. Gaming stone (Zenet Type 2). Limestone. L:21.5; W:12.4; Th:7.6. Fragmentary. Very roughly triangular, three rows of indentations: row one - nine, row two - seven?; row three - five. Medium hard, coarse texture, very rough surface, pocked. Buff-coloured. One side worked.

S249 G4 3. Pecking stone. Chert. L:6.1; W:5.9; Th:4.7. Intact, small broken surface. Spheroid, one side flattened. All surfaces pecked.

S250 G4 3. Pounder. Type 3. Andesite. L:5.9; W:5.6; Th:5.4. Intact. Spherical, flattened on six surfaces. Several pitted and flattened work surfaces.

S251 G4 3. Stone bowl. Andesite? D:13.6; H:7; D(inside): 10. Intact - a crack, several small chips. A bit larger than 1/2 a sphere, very symmetrical, large smooth indentation forming a "dish" in centre. Intentionally shaped. One surface worked.

S252 G4 3. Mortar. Type 3. Limestone. L:14.5; W:12; Th:5.6; D(hole):6.4. Intact - cracked. Ovoid, round indentation in centre. Intentionally shaped. Medium hard, surface a bit rough. Light buff. Deep cracks. One side worked.

S254 G4 3. Pounder. Type 2. Andesite. L:10.5; W:8.1; Th:5.0. One side damaged. Irregular shaped. Two flat surfaces, angles rounded. Angles worn from pounding.

S255 G4 3. Quern. Type 2. Andesite. L:38; W:15; Th:5.4. A long ovoid, convex on one side, concave on worked side. Intentionally shaped.

S256 G Surf. Grinder pounder. Andesite. L:10.7; W:7.8; Th:5.8. Intact. Irregular ovoid. Smooth surface where used for grinding. Two ends and rounded edge possibly used for pounding; rest of surface for grinding. "Tennis ball" pattern.

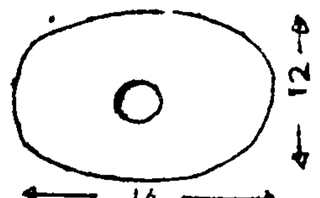
S257 G Surf. Adze. L:8.5; W:5; Th:2.2. Intact. Wedge-shaped, tapering to sharpened edge on broader end, both sides convex. Intentionally shaped, one end worked.

S258 Room 2. Unidentified. Type 2. Serpentine (Antigorite). L:2.8; D:1.1. Intact. Cylindrical object, flat on one end, rounded up to other end (flattened); four evenly spaced indentations around circumference; one nearest rounded top is deepest. Intentionally shaped. Blue-green.

S259 G4 3. Rubber pounder. Type 1. Grano diorite. L:8; W:6.3; Th:1. Intact. Irregular ovoid, one side naturally flattened. Both ends pitted. One in particular oval to circular area of roughening, flat. Other end curved and roughly pitted. Naturally flattened surface extra smooth from use as a grinder. Other surface domed and quite smooth.

S260 Room 2. Pounder. Type 3. Andesite. L:6.5; Th:5.6. Intact. Spheroid. Multi-faceted. Several pitted and flattened work surfaces. Parts of some faces very smooth.

S261 C Surf. Perforated stone. Type 1. Andesite. Fragment, ca. 1/3 remaining. Probably originally oval, now U-shaped. One side used as a quern? One edge round, the original apex? Showing signs of wear. Biconical drilled perforation. Max. diameter probably ca. 5 cm., min. diameter 2.6 cm. Signs of wear (i.e. well-smoothed) on central ridge of perforation. Reconstructed max. diameter ca. 14 cm., min. diameter ca. 12 cm.



S262 G4 3. Grinder/pounder. Andesite. L:7.7; W:7; Th:6.8. One large chip missing. Spheroid, two flattened surfaces. Alternating rough and smooth surfaces corresponding to the areas used for grinding and pounding. Rough "tennis ball" pattern. Bottom surface on sketch very smooth, blackened (consolidation) from use grinding.

S263 G Surf. Rubber pounder. Type 2. Andesite. L:10.3; W:7; Th:3.1. Intact. Oval. Both sides flattened from rubbing and ends rough from pounding. One end has double-faceted area of pounding, other end only used a little. Some scratching in two areas on the face, light use of hammering.

S264 Room 1. Pecking stone. Quartz. Diam:5.2 (max.) (4.8). Intact. Spheroid, slightly faceted. All surfaces pecked uniformly.

S265 Room 1. Pecking stone. Quartz. L:5.2; Th:4.8. Fragmentary, 1/2 missing. Cuboid. Multi-faceted. All surfaces pecked.

S266 G4 1. Pecking stone. Quartz. L:5.5; W:5.3; Th:4. Fragmentary, possibly 1/2 missing. Cuboid. Non-damaged surfaces pecked. May also have been used as a core as some negative bulbs of percussion are visible.

S267 G4 3. Pecking stone. Chert. Th:5; W:5. Fragmentary. 1/2 remaining. Roughly cuboid. All undamaged surfaces pecked.

S269 G4 3. Rubbing stone. Limestone. L:29.8; W:10.4; Th:5.9. Intact. Sub-rectangular, both ends rounded; one slightly pointed; faces flattened. Medium fine texture. Light grey/beige. One face well smoothed from rubbing. The other rough and irregular.

S270 G Surf. Saddle quern. Type 2. Andesite. L:26.5; W:15; Th:6. Intact. See description of S274 which is very similar.

S271 G4 3. Saddle quern. Type 2. Limestone. L(pres.):25; W:15.5; Th:7. Fragmentary. Originally elongated oval with flattened end. Other end broken off. Sides straight, one damaged. Work surface flattened, pecked first quite smooth. But odd use of limestone. Must be for grinding only a certain type of cereal? Quite a pronounced lip. Bottom surface smoothed and worn - ridged in middle, through use?

S272 G Surf. Saddle quern. Type 2. Grano diorite. L:40; W:17.5; Th:8.5. Intact, one end broken off partially. Elongated oval. Pretty straight sided, intact end slightly pointed. Very dense and heavy. Work surface smooth and flat. No real lip (edge) one end thicker than other. Bottom surface flattened in an oval.

S273 G4 3. Saddle quern. Type 2. Andesite. L:35.5; W:18.5; Th:5.5. Intact. Elongated oval, one end slightly flattened, straight sided. Work surface very smooth, curved, lips (edges) pronounced. Under surface flattened and also veined. Thin and even in section.

S274 G4 3. Saddle quern. Type 2. Andesite. L:33; W:18.5; Th:6. Intact. Elongated oval, one end curved (smaller), other elongated curve to one side. Work surface smooth and very flat, slight lip (edge) at small curved end. Under surface slightly ridged down the centre, intentional shaping? Some breakages along edges.

S275 G Surf. Quern. Type 1. Limestone. L:44; W:29; Th:12.5. Intact. Large quern made from beige white limestone.

S276 G4 3. Mortar. Type 1. Limestone. L:51; W:37; H:31. Intact. See S165 for shape.

S277 G4 3. Saddle quern. Type 1. Limestone. L:68; W(pres):17; Th:10. Fragmentary, 1/2 width preserved. Large-sized quern, made from beige/white stone. Many small black inclusions.

S278 A35 4. Saddle quern. Type 2. Andesite. L:27.5; W:25.5; Th:8. Intact. Slightly pear-shaped stone. Sides tapering, narrow end rounded, wider end slightly curved at junction with sides. Work surface smooth, flattened, some peck marks visible. Entire shape of work surface very visible. Lip (edge) at wider end. Bottom surface smoothed and flattened.

S279 G Surf. Gaming stone (Zenet Type 1). Limestone. L;26.5; W:20.8; Th:9.4. Fragmentary, ca. 1/8 missing. Roughly quadrangular - broken end wedge-shaped. Unaltered riverstone. Underside very uneven, sides rounded. Main face smoothed with three roughly parallel rows of shallow uneven depressions. Row 1: 10, the end one is larger (may make 11). Row 2: 10 depressions. Row 3: much smaller and irregular 9 remaining. Row 3 very close to row 2. Underside has a deepish ridge, natural? But perfect position to carry and hold. Fine texture, smooth surface. Buff. Stone quite heavy for size.

S280 A. unstrat. Bifacial gaming stone (Mehen Zenet). Limestone. L:36; W:31; Th(max.):14. Fragmentary (two pieces, one large fragment missing). Very irregular discoid. Transverse section triangular with rounded angles. Side 1: 3 roughly parallel rows of 10, 9 (1 missing), 10 shallow depressions. 1 larger depression to 1 side. Side 2: At least 17 shallow depressions (including a larger central one) that should probably be considered as a rudimentary spiral. Weathering and damage makes this interpretation difficult. Coarse texture, buff colour. All surfaces originally worn smooth indicating a riverbed provenance. Badly damaged (chipped) in places.

S281 A38(W-W) 6. Bifacial gaming stone (Mehen Zenet Type 2). Limestone. L:24.3; W:18.6; Th:7.2. Intact, some breakage along edges. Roughly oval stone, both faces flattened. Ends shaped to be rounded, also sides but they are now slightly broken. One face: 31 elongated oval depressions, one larger circular omphalos. Ovals run in a spiral, from the broken side edge of the stone to the centre. Starting oval very elongated. Second face: Mini-zenet: three rows of tiny 'o' depressions. Large pecked oval to one side, 32 with omphalos and starter 1/2 the size of the complete 3 x 10 set-up. Grain rough, sandy texture, light in weight. Yellow, beige stone with many inclusions, multi-coloured.

S282 A38-All 1. Grinder pounder. Andesite. Diam:7; Th:6.3. Intact. Spheroid. One face slightly pitted and faceted, other smooth. Sides rounded and smoothed.

S283 A2 8. Whetstone. Type 1. Andesite. L:14.3; W:(max.) 4.5; Th: ca. 3.5. Intact. Elongated. One face concave through use as a whetstone. Other slightly convex, partially used (?) as a whetstone. Both ends pitted, also small area on convex face.

S284 A2 8. Hammerstone. Andesite. L:8; W:6.1; Th:(max.) 2.8. Intact. Discoidal. Both faces naturally flattened, one slightly concave. Both faces pitted, one extensively. Edges also slightly pitted, and ends especially.

S285 Room 7a. Grinder pounder. Andesite. L:8.1; W:5.7; Th: max. 4.2. Intact. Sub-rectangular, multi-sided, five facets, all but one smoothed (this used for pounding). Ends rough, one pitted from use. One facet also lightly pitted in a small area from hammering.

S286 A35 4. Grinder pounder. Andesite. Diam:6; Th:6. Intact. Spheroid, three flattened surfaces. Alternating rough and smooth surfaces corresponding to the areas used for pounding and grinding. Rough "tennis ball" pattern.

S287 A35 5. Pecking stone. Chalcedony. Diam:4.8-5. Intact. Spherical, only very slightly faceted, nearly circular and regular. All surfaces pecked.

S288 Room 3. Pecking stone. Quartz latite. Diam:4.7 - 4.8. Intact, two faces slightly broken. Spheroid but with flattened faces, multi-faceted. All surfaces pecked, two damaged (through use?). Some heavy pitting.

S289 All 5. Axe. Type 1. Andesite. L:11.6; W:5.9; Th:3.3. Intact. Cutting edge damaged from pounding, also butt. Khikotia Type III b. Long with convex faces but flatter than I and II. With slightly flattened butt, that is narrow. Cutting edge flattened and damaged from secondary use as a pounder? Both faces have a small area of pitting, one roughly circular. See S294, S289.

S290 A unstrat. Axe. Type 2. Felsite. L:11.6; W:5.6; Th:4.2. Intact. Cutting edge slightly damaged. Long, thick with convex faces, thick slightly flattened butt. Smoothed and polished halfway toward cutting edge. Toward haft end rough. Butt slightly pitted, cutting edge missing several flakes, very slight pitting on sides. See S5, S179a.

S291 Room 18. Pounder. Type 3. Andesite. L:7; W:5.2; Th:5.6. Intact. Spheroid with ridged top. Fist-sized. Top ridge smooth sided, bottom face slightly pitted. Ends rounded and smooth.

S292 Surface E of A40. Pecking stone. Quartz latite. Diam:5.8; Th:5.9. Intact. Spheroid with flattened faces, multi-faceted. All surfaces pecked, one damaged (through use?) Some pitting on two faces.

S293 Surface near A40. Pecking stone. Quartz-chalcedony. Diam:6.2. Broken in half, large chip off one face. Probably spheroid. Flattened faces, multi-faceted. All surfaces pecked. Some pitting and chipping.

S294 A20 3. Axe. Type 1. Felsite. L:11.2; W:2.8-3.8-4.8; Th:2.2-3. Intact. Long with convex faces and narrow, slightly flattened butt. Partially polished. Cutting edge slightly flattened through damage and secondary use as a pounder? Butt also damaged in this way. Sides also damaged and about 1/2 of one face pitted. See S289.

S295 Room 10. Whetstone. Type 3. Limestone. L:(pres) 4.8; W:1.3; Th:0.8. Broken, one small fragment, repairable. Part of end with hole missing. Drilled twice, from both sides, obliquely from the top and end (see S22). Fragment roughly rectangular, half-rounded and tapered at one end. Smoothed on all sides. Hard, fine, smooth grey stone. Some damage on one face. Cracked along surface where drill hole well preserved. Slightly concave on two surfaces from wear (use).

S296 A20 4. Rubber pounder. Type 1. Tertiary use as hammerstone. Andesite. L:10.6; W:7.5; Th:4.9. Intact. Sub-rectangular with one side rounded. All sides originally smooth, one (rounded as mentioned above) partially roughened. Both ends rough. One end triple-faceted. Both sides pitted from tertiary use as hammerstone. See S34.

S297 Room 18. Rubber pounder. Type 2. Andesite. L:9.75; W:9.15; Th:4.9. Intact. Discoidal, one face rounded. All edges roughened and multi-faceted through use. Both sides pitted from tertiary use as a hammerstone.

S298 Room 19. Axe. Type 4. Andesite. L:15.5 pres; W:3.8-6.3; Th:2.8 pres. Damaged, only about 2/3 preserved in thickness. Damage to cutting edge and on butt. Elongated, originally probably with convex faces (one entirely gone, other now slightly concave through secondary use or damage?) Tapered butt slightly rounded. Flat sides. Butt pitted and damaged, cutting edge gone. One face damaged and roughened, 1/3 gone. See S328, S421.

S299 Area 25. Macehead. Type 3. Andesite. H:3.7; Diam:3.8 pres. Broken, 1/3 preserved. Small, round with central hole (vertical). In this case shaft hole pecked, not drilled. Hour glass in shape. Badly broken so that only a portion remains, though full height present. Damaged around shaft hole. See S37. For larger: S10, S41, S150, S213, S301, S334, S346, S386.

S300 Room 10. Rubber pounder. Type 2. Andesite. L: pres.7; W:9.2; Th:5.1. Broken, only about half remaining. Smooth on two faces, end damaged through pounding. Two small areas of pitting near the break where used for hammering. Both faces used for rubbing or grinding.

S301 A20 4. Stone macehead. Type 1b. Limestone. L:7.5; W:6.6; Th:5; Diam.(hole):1.7x1.3, 1.4x1.4. Broken but will be whole. Ovoid macehead, slightly pointed at one end (?) (or due to break). Flattened slightly at top and bottom where shaft hole comes through. White limestone with some grey and brown mottling. Central shaft hole vertically drilled, hour-glass in shape, very smooth. One hole slightly ovoid: 1.7 x 1.3, breakage around edge; other 1.4 x 1.4. Circles of drill marks very visible, esp. on 1.4 x 1.4 hole. Exterior surface smooth originally, now slightly pitted with age. Some areas slightly flattened.

S302 A17 4. Perforated stone (hammer) Type 1. Andesite. Diam: 11.3; Th:4.4; Hole:2.3. Mostly intact, surface and edges broken and chipped. Circular to slightly ovoid in plan, central vertical hole. Hole drilled and smoothed, done from both directions. Hour-glass shaped. Flattened on one surface, rounded on other. Original smoothing preserved in some areas. Stone badly damaged, edges badly smashed as is much of each surface. Originally used as a quern. See S52, S142, S155?, S159, S224, S228?

S303 Room 8. Pounder. Type 2. Tertiary use as hammerstone. Andesite. L:10.4; W:(max.)10.4; Th:4. Intact, some damage from pounding? Discoidal to slightly triangular. Edges multi-faceted. Faces slightly concave. Very smooth on all faces and edges except where used for pounding. Both faces slightly pitted (scratched), from tertiary use as hammerstone.

S304 Room 10. Hammerstone.
H:6.7; W:3.5,7.2; Th:6.1. Intact, some flakes removed from two faces. Truncated pyramid, multi-faceted. Two surfaces (opposing) pecked from hammering? Some large flakes out on two other surfaces from use? Hollowing on two other surfaces (one of above mentioned).

S305 A17 2. Mortar. Type 2. Limestone. Th:2.8 pres. toward base. Fragment, ca. 1/4 preserved. Fragment of a mortar. Inner surface preserved with part of flattened rim to base. Exterior surface badly worn, not possible to calculate precisely. Inner surface smoothed. Width of rim pres: 1.9. Very soft, powdery, homogeneous, white. Badly worn. Originally a shallow mortar, part of section practically to base preserved on exterior, though worn.

S306 A18 4. Hammerstone. Andesite. L:10.7; W:9.6; Th:4.3. Intact, one chip missing. Oval to round. Two near circular areas of roughening, one on each face from use as hammer. Some pounding on edges. Several areas of smoothing on one face in particular, rubbing or grinding.

S307 Area 25. Hammerstone. Diorite. Diam:5.5-5.8. Intact, one face slightly broken. Spheroid but with flattened faces, multi-faceted. All surfaces pecked, some heavy pitting. Fist-sized.

S308 Room 19. Rubber pounder. Type 2. Andesite. L:10.3; W:7.4; Th:3.7. Intact. Oval, flattened on one end from pounding, round on other. Smoothed surfaces, used for rubbing, grinding? Size palm of hand. Rough on pounder end. Circular areas on each face from use as hammerstone. Some pitting on edges - more pounding. Very smooth on both faces, rubbing.

S309 Room 8. Pounder. Type 1. Felsite. L:10.3; W:2.0, 3.6; Th: 2.7, 3.2. Intact. Small, elongated. Triangular in section, rounded at one end. Flattened and slightly pounded at other. Slightly convex on one surface. Evidence of pounding at each end, hammering on the sides.

S310 Area 25. Pounder. Type 3. Grano diorite. Diam: 5. Intact. Multi-faceted. Fits easily into the palm of hand. Facets rounded and flattened.

S311 Room 10. Saddle quern. Type 2. Andesite. L: pres. 16.8; W: pres. 12.6; Th:3.8. Broken. Small quern with flattened end? Or is the end broken off (very old break)? Oval at other end, but not a finished edge. Curved in profile and section. An area of pitting on curved surface, hammering.

S312 Room 8. Unidentified. Type 6. Antigorite. Diam:2.4; Th:0.3. Intact. Circular disc, flat, thin. One surface (blue-green) originally smoothed, now slightly damaged; other (yellow-green) roughened (left rough). Undecorated.

S313 Room 9. Spindle whorl. Type 2. Antigorite. L: pres. 1.6; Th:0.8. Broken. Only a very small fragment of the exterior edge of disc (toggle?) (See S16, S62 - pierced discs). "Dark" blue-green, some white and green veining.

S314 A20 3. Pendant. Type 4. Antigorite. L:1.35; W:0.35, 0.95; Th:0.15, 0.25. Very small, curved at one end, tapering sides to narrower slightly curved other end. Pierced circular hole, drilled off centre, slightly toward narrow end. Very thin, smoothed surfaces and edges. Diam.(hole):0.25 - 0.4. Slightly curved in section. Blue-green with black on edges, some brown also.

S315 A17 3. Unidentified (jewellery?). Type 6. Serpentine. L:pres:1.8; W.pres:1.3; Th:0.5. Broken. Fragment from a disc? (See S16, S62, S313 - pierced discs). Two finished surfaces, one finished very slightly curved edge. One surface slightly concave, other very slightly convex? Very slightly curved edge. may be too straight to be a disc. Grey-green, some white inclusions.

S316 Area 25. Jewellery - pendant? Type 4. Antigorite. L:(max.)3.9; W:(max.)2.6; Th:0.75; Diam.(hole)0.8. Intact. Four-sided piece; one edge curved, opposing diagonal, one straight, one curved. Drilled circular hole approx. in middle, drilled from each surface, drill marks visible. Flat in section. Grey-green with much white and brown staining on surfaces.

S317 Room 19. Pecking stone. Chalcedony. L:4.0; W:2.5. Fragmentary, found with flints. Small piece of exterior surface of a pecking stone. All exterior surface pecked.

S318 A18 5. Saddle quern. Type 2. Andesite. L:32; W:14; Th:4.4 max. Intact with some breakage along one edge. Exterior surface convex due to wear and use. One area well worn. Interior surface very smooth and concave due to grinding. Ends double-faceted and "canoe-shaped". Both edges chipped and broken.

S319 Room 19. Gaming stone (Zenet Type 1). Calcareous sandstone. L:20.2; W:14.5; Th:4.2. Intact, with some chunks broken off. Rectangular with one rounded side, both ends slightly rounded (one broken off). Roughly flattened on one face, other naturally slightly convex. Semi-circular cut on one side, deliberate? Three rows of shallow "circular" irregular impressions cut on a slight diagonal on the flattened surface. Several extra small quasi-circular depressions at a short distance from the "five series".

S320 Room 19. Work surface (?) Limestone. L:23.5; W:21.5; Th:(max.)6.3. Intact. Roughly circular, slightly pyramidal in section. Rough, grey-white with multi-coloured inclusions. Two near-circular depressions on concave smoothed face, from use (pounding, grinding, etc.) Probably used as a small table or work surface. Curved side put in floor. No real wear elsewhere.

S321 Area 25. Grinder pounder. Diorite. L:7.1; W:6.5; Th:4.2. Intact. Hand-sized, irregular lopsided shape, multi-faceted. Rounded and flattened and smoothed faces from grinding. Three facets roughened and pitted from pounding.

S322 A17 4. Jar cover (?) Limestone. L:pres.5.5; Th:1.7. Fragmentary, broken (in with sherds). Rim, or edge (finished) and two surfaces of a dish, bowl, container, disc or flat plate? Curved edge, flat-sided. Beautifully polished, smoothed and finished. Fine, white-yellow-grey in colour. One side calc-covered.

S323 Room 17. Grinder pounder. Andesite. L:7.2; W:4.95; Th:5.7. Intact, some damage and chipping. Palm-sized, roughly ovoid, multi-faceted. One surface flattened - used secondarily as grinder. Ends roughened from pounding.

S324 Room 7. Perforated stone (hammer) Type 1. Andesite. L: 7.9 pres.; W:10; Th:5.4. Half-preserved. Originally oval in shape. Extremely well-smoothed and polished. Vertical shaft hole located slightly off-centre. Hole drilled and smoothed done from both directions. Hour-glass shaped. Wear at preserved end, pitted from original use or secondary use as hammerstone. Pitting and damage around one end of shaft hole. See S52, S142, S159, S224, S228, S302.

S325 Room 17. Rubber pounder. Type 2. Andesite. L:9.4; W:8.7; Th:4.5. Intact, some damage at one end. Discoidal, palm-sized. One face rounded, other flat. Some edges roughened, one in particular. Other chipped and broken. Both sides pitted from tertiary use as hammerstone.

S326 Area 25. Pecking stone. Chalcedony. Diam:5.7; H:pres. 3.7. Approx. half preserved, three faces broken off. Probably spheroid, multi-faceted. All surfaces except the broken ones are pecked. Used as a core?

S327 Room 19. Rubber. Limestone. L:19; W:5.4, 6.4; Th:5.7, 6.0. Intact, one surface flaked and eroded. Large, elongated, oval in section, curved at each end, one end slightly tapered. Medium texture, white with much grey. Exterior surface buckled and flaked along two faces and the ends. Sides were smooth, now some calc cover. Ends used for pounding? One side in particular rounded.

S328 Room 9. Axe. Type 4. Andesite. L:13.9; W:6.1; Th:3.3. Basically intact, worn, chipped and broken at cutting edge. Flat, sub-rectangular, unfinished. Some areas very smooth, others left intentionally rough (butt to shoulders). Tapered flattened butt (in section), slightly rounded in plan. At approx. 1/2 its length a "flaring", like shoulders. Very smooth from this point to the cutting edge. Thought to be an unfinished axe in the process of being blocked out (thus flaring) for use. Could have originally been a rubber as so smooth. See S298, S328, S421.

S329 A21 4. Pounder. Type 3. Aphanitic igneous. H:5; Diam:5.3. Intact. Spheroid, multi-faceted. Smooth due to lack of use? Some areas roughened vaguely. Some smoothness could be due to washing in acid. Multi-facetting may also be due to use as a pounder, rubber grinder. This could also explain the relative smoothness.

S330 A21 10. Work surface (?) Limestone. L:pres. 11.8; W:pres.9.5; Th:3.8. Fragmentary. Piece of a flat work surface? Rounded edge, top surface flat, other rough (unfinished). Also flattened at curved edge.

S331 A18 9. Rubber pounder. Type 3. Andesite. L:10; W:8.8; Th:5.1. Intact. Oval. Curved to nearly flat faces. Used primarily as hammerstone. Two deep areas of pitting on each face. Near circular. Some use as a pounder seen on the circumference. One area of smoothing due to use as a rubber/grinder?

S332 Room 9. Rubber. Type 2. Diorite. L:12.9; W:12; Th:5.2. Intact. Discoidal to round. Both faces very smooth, shiny and flattened.

S333 Area 25. Rubber pounder. Type 3. Andesite. L:13.7; W:10.1; Th:4.9. Intact. Oval-discoidal and generally smooth. Blackened areas (polishing of stone makes it appear blacker) on both faces from use as a rubber, these extra smooth. Both faces flattened, to slightly concave. Two ends roughened, and one in particular flattened from use as pounder.

S334 Room 10. Macehead. Type 1a. Felsite. H:5.4; Diam:5.7; Hole: 1.3, 2.15. Intact, some slight damage to one end. Ovoid, asymmetrical, with vertical shaft hole. Smooth and slightly polished in certain areas. Some roughening towards ends and central hole on wider end. Central hole drilled, 1.3 - 2.15 in diam. Horizontal striations visible. Not biconical hole but one flare-out visible approx. 1/3 through thickness. Slight damage at one end.

S335 Area 26. Pestle? Aphanetic andesite. H:6; W:5.6; Th:3.8. Intact. Mini-pestle. Near-ovoid stone, one flattened end. Multi-faceted on one surface. Flattened end used for grinding, very smooth and darkened in one area. Two sides also darkened in a similar way.

S336. Room 9. Pounder. Type 1. Andesite. L:16.3; W:4.6, 7.3; Th:4. Intact, but edges damaged, chips off in places, through use? Elongated, triangular in section, flaring at one end. Both ends roughened from pounding, also true for sides. Large flakes removed. Faces pitted and scratched from hammering.

S337 Room 10. Pounder. Type 1. Andesite. L:15.1; W: pres. 12.1; Th: approx. 6. 1/3 broken off. Large in size and heavy but fits well into one's hand. Heavy pounder, i.e. used along the edge for pounding with good deal of force. The reason that the 1/3 is broken off may be due to use. Used edge roughened and chipped. One surface concave (wear?) Quern originally.

S338 Area 26. Rubber pounder. Type 3. Porphyry-andesite. L:10.25; W: pres. 7.5; Th:4.3. Large chip broken off. Slightly ovoid, tapering at one end. Tapered end rough from use as a pounder. Other faces and other end in particular used for rubbing. Some areas on sides, one on each face, used for hammering.

S339 A19 6. Rubber pounder. Type 3. Andesite. H: pres. 10; W:9.6; Th:4. One end broken off. River-stone, pear-shaped with one end (narrow) broken off. Smooth on the outside, but not entirely from use. One end roughened and pitted from pounding. One face very smooth, slightly concave and blackened from grinding. Edges and two near-circular shaped areas on each face scratched and roughened from hammering?

S340 A18 9. Hammerstone. Limestone. L:8.2; W:7.4; Th:4.1. Intact, one end rather battered. Fist-sized, near-oval (D-shaped) stone, flattened in section. Marked on one end and both faces. Soft, white-yellow. Basically smoothed, with some roughening of the edges. One end badly flaked and eroded through use or due to soil conditions?

S341 A19 6. Jar cover (?) Andesite. Diam:10.1; Th:3.2. Intact, one side very rough. Oval to circular in shape. One face curved and smooth, the other flat and rough. Intentionally shaped.

S342 Room 9. Grinder pounder. Diabase. L:7; W:6.6; Th:5.9. Intact, slight flaking on surface. Spheroid. Heavy, dense stone. One surface flattened and a bit smoothed (rubbing?) Edges and faces have some areas of wear and pitting from pounding and hammering.

S343 Room 9. Rubbing stone. Type 1. (With S344). Gabbro. L:12.7; W:4.4, 3.7; Th:2.3 - 2.6. Intact. Both surfaces very smooth and polished from use, especially toward the ends. Slighly concave. Ends and edges roughened through use as pounders? Used with quern Ph S344.

S344 Room 9. Quern. (With S343). Diorite. L:21.2; W:9.1; Th:1.3, 4.2. Intact. Small, oval-ended. (Sole of shoe-shaped). Ends rounded, one face straight other slightly curved. One edge thick, other thin. Saddle-shaped in section. Curved surface smoothed and well worn. Flattened surface also smooth and a large white inclusion well worn and flattened. One end might have been used as a pounder. Rubber S343 used with it? Found together or in proximity.

S345 A29 3. Hammerstone. Felsite. L:8.4; W:8.2; Th:3.2, 5.5. Intact, minus one chip. Rectangular. One surface concave and smooth, used? Other slightly convex, with a "circular" shaped, pitted area from hammering. One end terminates at natural striations.

S346 Room 10. Macehead. Type 1a. Felsite. H:5; Diam: 4.3, 4.5; Hole:1.35, 1.2, 1.5. Intact. Barrel-shaped, cylindrical but one side slightly flattened. Beautifully drilled central shaft hole, flaring out at one end. Slightly damaged at flared end. Very well smoothed and was polished. Some polishing still felt and seen at narrow end of shaft hole.

S347 Room 8. Mortar. Type 1. Limestone. L:23; W: 10, 18; Th:23.5, 26. Intact. Roughened stone, triangular in shape with one end flattened. One end roughly curved, two sides slightly concave, other end flatter. Base, half curved, half flattened. Near-circular depression, shallow in relation to the thickness of stone. Depression pecked and then smoothed, tapers in depth. White limestone with various inclusions, beige weathering, natural pitting, in particular at a depth of about 6 cm below the top surface. Depression: diam: 14, 12 ⟶ 11.5, 9.5
depth: 13.8.

S348 Room 19. Stone weight with suspension hole. Limestone. L:22.5; W:21; Th:8, 12, 8.5. Chipped and one side broken. Rectangular, one end slightly narrower. Both ends slightly curved. One side broken/square. Other side curved, chunk of body of stone broken away. Oval hole pierced through the stone toward one end (narrower end). Pecked hole, hour-glass shaped. Some pecking and chipping also at the thickness at the end with the hole. White beige, inclusions and conglomerate. Hole: 7.5 x 6 ⟶ 2.5. Weight: 6870gr.Estimated original weight 8800 gr.

S349 Room 19. Stone weight with suspension hole. Limestone. L:31.5; W:24; Th: 11, 16. One side broken. Large, heavy, originally rectangular with curved top. Hole, oval in shape, pecked at one corner, through narrowest dimension. Pecked from each side, narrowing in diam. Hour-glass shaped. White, beige <u>havara</u>. Various inclusions. Both faces flattened, sides curved. Flares in thickness toward base. Hole: 5 - 6.5, 2, 5 - 6.5. Weight (over 13,000 gr.)

S350 Room 10. Stone weight with suspension hole. Limestone. L:pres.31; W:23; Th:7.21. One edge broken. Stone originally diamond-shaped. One face flattened, other rough and irregular from weathering? Hole set to one side, by edge. Wear or shaping at top of hole. Flares in thickness from the end where hole is located. Hole pecked through at narrowest dimension. Pecked through from each side, hour-glass shaped, oval-shaped to sub-rectangular in width. Some shallow depressions, random. Rough, sandy texture except for one face smoothed. White-beige, area of red weathering. Weight: 8320 gr. (original weight ca. 10,320 gr.) Hole:6-1.5-5.

S351 Room 10. Pivot stone. Limestone. H:22; L:34; W:25. Intact. Large, oval, with flattened (worn in one area) base. Circular-shaped depression (17 x 16.5 and 4.3 deep) initially used as a mortar. Secondary use as a pivot stone, with pivot having two separate positions. D. of one depression 9 cm, the other is ca. 6 cm. Circular striations clearly visible.

S352 A18/17 1. Saddle quern. Type 2. Andesite. L;30; W:10.5, 14, 10.5; Th:4, 8. One end broken. Slightly boomerang-shaped. One end curved and smoothed. Other end broken off. Sides curved, one rather jagged and broken. Work surface well smoothed and used. Edge of work surface well-defined at preserved end. Bottom surface ridged or domed in section. Some smooth areas. Dark veining visible.

S353 Room 19. Saddle quern. Type 2. Andesite. L:31; W:13, 16.5; Th:5.5. Intact, one edge slightly chipped. Oval, flat work surface with no rising ends. Oval on other surface, but only slightly so. Slight concave area. Work surface barely larger or wider on one end than the other.

S354 Area 21. Unidentified. Type 5. Serpentine (antigorite). L:pres. 1; W:1.3; Th:8. Fragmentary. One small piece, end slightly worked, flattened. Grey, blue with large impurities. Incised line, decoration and scratches toward the finished end.

S355 Area 25. Button or toggle. Type 2. Serpentine (antigorite). Diam: 2.45; Hole:.8; Th: .3. Broken, but only a small fragment missing. Flat circular disc, one edge, surface slightly curved. Drilled central hole, done from each side. Grey-blue, some black weathering.

S356 Area 25. Jewellery (pendant) Type 4. Serpentine. L:2; W:1.0, 1.5; Hole: .3, .4, .6. Intact. "Pebble", ovoid in shape, tapering slightly at one end, with pierced central hole at that end. Hole drilled in two directions. Grey-green with white veining. Scratches on one surface.

S357 A21 11. Unidentified. Type 5. Serpentine (antigorite). L:4.3; W:1.5; Th: .7. Intact, worked. "Pebble" of serpentine. One surface very smooth and flattened, other slightly curved. Grey-green, white veining. Much black on surface, weathering? Worked. Two faces scratched and cross-hatched.

S358 Room 10. Unidentified. Type 5. Serpentine (antigorite). L:7.6; W:4.6; Th:2.3. Intact, worked. Large pebble, sub-rectangular, edges flattened. Pale grey-green with white veins, much brown-yellow splotching. Much scratching on both faces and sides. Some straight cuts on one face. Two quasi-circular areas of pitting on each face. Was this preparation for drilling a hole?

S359 Room 12. Button or toggle. Type 2. Serpentine (antigorite). Diam: 3.1; Hole: 1.1; Th:0.5. Intact. Circular disc with pierced circular hole, drilled in two directions. Hole slightly off centre. Flat in section. Sides multi-faceted from cutting out the circular shape. Grey (green) beige with white inclusions. Almost white when dry. Much brown weathering. Much scratching on all surfaces. Some flattening and polishing.

S360 A19 5. Stone weight with suspension hole. Limestone. H:11.2; W:7.9, 8.8; Hole:1.7, 2.4. Intact. Hemisphere, rough and unfinished. Pierced at one end with a pecked hole. One surface flattened, natural? The rest curved. White-beige with various inclusions. Some indication of wear; a rope, sinew etc. having been used through hole to support the stone. Weight 1030 gr.

S361 A19 5. Pecking stone. Quartz. Diam:5.9, 6.4; H:pres. 4.7. Fragmentary. Half preserved. Was probably spherical, some faceting visible. Surface very much pecked and pitted from use. May have been used when split (broken) as a core. One blade visible having been struck, perhaps two.

S362 A19 16. Jewellery (pendant type 3). Serpentine (antigorite). L:1.5; W:1.25, .75; Th: .1, .175. Intact. Bell-shaped. Bottom has little cuts giving it a comb effect. Slight shoulder effect where the pendant flares out in width. Grey-green-blue serpentine with large white veins (short). Hole for hanging is elongated, indicating a lot of wear. A few scratches on each face, intentional?

S363 Room 10. Rubbing stone. Andesite. L:11.7; W:4.5, 5.1; Th:2.5, 2.7. Intact. Elongated oval. Both surfaces quite flat. Black shiny areas from use as a rubber? Roughening and some pitting on each end from pounding? Very light. Scratches and roughened areas on each face from hammering? Some calc cover.

S364 Room 10. Pounder. Type 2. Andesite. L:7; W:6.2; Th:4.3. Intact. Triangular. Flattened on one surface, the other half-curved, half-flattened. Where not roughened from pounding, stone extremely black and shiny, smooth. Some areas of scratching and light pitting on the black areas. Used for hammering (light) or pounding. Edges multi-faceted from pounding 3/4 way around circumference.

S365 A18/17 5. Pounder. Type 1. Andesite and felsite. L:13.1; W:12.3; Th:9.4. Broken, large chunks missing. Large and irregular. Multi-faceted, partially natural. Some facets very smooth - used for grinding? Three perhaps. One end triple-faceted, roughened and pitted. Used as a pounder.

S366 Area 20. Rubber pounder. Type 1. Diorite. L:14; W:7; Th:1.7, 5.6, 4. Intact. Elongated, oval to tear-shaped in section, slightly curved toward one end. Shape fits in hand beautifully. Excellent specimen. Very smooth along trunk from rubbing and being held for pounding. Ends oval in plan, roughened where pounded. Side faces rounded, one in particular, shiny and black from use.

S367 Room 10. Unidentified. Andesite. L:23.5; W:13.5; Th:3.8, 4.1. Broken at each end, large chips missing. Large, flattened oval disc. Initially used as a rubber? Both faces very smooth, one slightly concave with one end raised. A small quern? Other slightly curved w/o the raised end. Edges also curved and smooth. Ends damaged and roughened from use - heavy pounding or hammering. One face has a longish, near-circular area of shallow pecking off centre. The other has a very regular deeper circle of pecking centrally located. Some random pecking on both faces.

S368 A21 2. Rubber pounder. Type 2. Andesite. L:10.6; W:7.2, 11.5; Th:4.1, 3.2. Intact. Triangular with one flattened end. One face very smooth and blackened, shiny through use. Flattened end roughened from pounding. Small area of hammering on face opposite the very smooth face.

S369 A19 6. Rubber pounder. Type 2. Andesite. L:11.8; W:7.4, 10; Th:4.3. Intact. Discoidal. Slightly curved in section though one face flattened and slightly concave in one area. Very smooth, darker and shinier in that area from rubbing. One end slightly roughened from pounding. Other end extensively so, even some flaking and chipping from heavy pounding. Two areas of pitting, one on each face from tertiary use as a hammer.

S370 Area 25. Rubber pounder. Type 1. Fine-grained diorite. L:15.5; W:3.7; 7.9; 9.2; Th:4.9; 5.3. Intact, a couple of chips missing along pounding end. Elongated, triangular. One face smoothed and flattened, darker grey in colour from use as a rubber. Surface slightly concave. Larger end "oval", multi-faceted, roughened from use as a pounder. Narrow, tapered end, very oval and smoothed. Sides also smooth.

S371 A18/17 5. Hammerstone. Diabase. L:10; W:9.2; Th:6.5. Intact. Circular riverstone flattened on one surface, curved on other. Large, hand-sized, heavy and dense. Flat surface very smooth from use. Slightly concave. Some roughening around the edge. Curved face has a litte roughening.

S372 Area 25. Pounder. Type 3. Diorite. Diam:5.2; Th:4.8. Intact. Cuboid, fits well in the hand. Six faces, flattened sides. Smoothed areas on each facet but not very flat.

S373 A19 12. Grinder pounder. Quartzite. L:7.9; W:7.6, 5.7; Th:5.5, 5.9. Intact. Palm-sized river stone. Excellent specimen. One end well shorn off and worn. Three or four faceted from pounding. One face well flattened and smoothed. The other face also but not as flat. One end slightly roughened and pitted from pounding or hammering?

S374 Area 25. Pounder. Type 4. Andesite. L:5.5; W:3.2; Th:2.9. Intact. Mini-sized, flattened, egg-shaped. One face flat to slightly curved; other curved, ends rounded. Flattened face very smooth, black and shiny from compacting of surface.
Small circular area of light hammering? Curved face with oblong area of deeper roughening.

S375 Room 12. Pecking stone. Chalcedony.
Diam: pres. 5; Th: pres. 3.8. Fragment only. Badly broken, hard to judge original shape and dimensions. Part of exterior surface remains. Appears that originally spheroid, multi-faceted? Exterior surface where preserved extensively pecked and used, characteristically.

S376 Room 24. Rubber pounder. Type 2. Andesite. L:11.3; W:7, 9.3; Th:4.4, 5.3. Intact, some damage at one end and along one edge. Large, palm-sized, oval to sub-rectangular. Slightly curved in section. One side rounded, other diagonal though damaged. Both ends dual-faceted. Two faces very smooth and blackened through use. Roughened areas, sides and ends, also relatively smooth. Sides roughened from pounding. Both faces used for rubbing. Later for hammer as two areas of pitting visible.

S377 Area 25. Pecking stone. Chalcedony. Diam:7.6; 8.0; H:6. Basically intact, some surfaces battered and broken off. Large, fist-sized. Edges round, one face flattened, other flat but broken. Much evidence of pecking all over. Thick calc cover in places.

S379 Room 10. Hammerstone. Andesite. L:8; W:7; Th:2.4, 2.8. Intact. Flattish, circular. Surfaces very smooth, flattened, worn. Edges pitted from use as a hammer and a near-circular shaped area on one face. Other face a slightly scratched and slightly pitted similar area.

S380 A19 6. Rubber pounder. Type 2. Andesite. L:10.3; W:8.6; Th:2.7, 4.8. Intact. Discoid. One surface curved, other double faceted giving stone a triangular section. One end oval, other squared and broken off. Both used for pounding? Edges also slightly used. All surfaces used?

S381 Room 19. Pounder. Type 4. Diorite. L:5; W:4; Th:3.7. Intact. Ovoid, small, egg-shaped. One end rounded, the other indented, concave from use. Other surfaces very smooth from use? Alternatively, could it be a small weight with one end flattened so that it could stand? Or a stone being prepared to make another stone object? The concave depression looks as though it were pecked rather than as a result of pounding.

S382 Room 10. Rubber pounder. Type 2. Andesite. L:10.4; W:7.1; Th:3.0, 3.4. Intact. Elongated, oval. One face very smooth flattened, even slightly concave from use as a rubber. Other face slightly ridged in middle, worn and smooth in several areas. Both faces darker, shiny through use. One end flattened, double-faceted from use as a pounder. Other has small area of pitting from more pounding.

S383 Room 10. Grinder pounder. Diorite. Diam:7.2, 7.5; H;6.5. Intact. Fist-sized stone, dome-shaped. One surface flattened and smooth, darker as used for grinding. Though basically rounded, extra-faceted. Also used for grinding? Certainly use not extensive.

S384 A18/17 4. Rubber pounder. Type 2. Diabase. Diam:9.7, 9.9; Th:3.7. Intact. Discoid. One surface rounded, the other flat or even slightly concave. Edges curved except for one which is squared. Evidence of pounding along flattened edge. Also along some of the curved edges. Areas of flat-concave surface well smoothed from use. Areas of light hammering on each face.

S385 Room 10. Whetstone. Type 1. (Rubber?) Limestone. L:14.2; W:5.9, 4; Th:2.5, 3.5. Intact. Elongated, one end tapering to a slightly flattened end. Other end curved. Sides smooth and also tapering to narrow end. Fine grain, white-yellow with many tiny black inclusions. Some calc covering and beige weathering. One surface concave and very smooth from use as a whetstone or a rubber? Not the entire surface is used. Still rough up to and around a high-ridged edge. Other edge very thin. Both ends slightly roughened and pitted from pounding?

S386 A18 11. Macehead (unfinished?). Limestone. L:6.85; W:5; Th:4.8, 5.0. Intact. Ovoid, flattened on one side, curved on the other. Curved face very smooth. Flattened face is rough and covered with calc. One end slightly tapered and pointed. Oval to circular pitted depression. Start of a vertical shaft hole? Very smooth in this area. Other end flattened, slighly pecked. Smooth, very fine grain, sandy. White some brown weathering and small black grits. It looks as though this stone was being prepared and shaped to be made into a weight or macehead.

S387 A19 16. Unidentified. Type 5. Serpentine (antigorite). L:1.85; W:1.1; Th: .25. Broken, fragment only. Part of a pendant? Original shape? Pale grey-green with white veining and flecks. Flattened and smoothed on both faces. One finished edge?

S388 Room 19. Mortar. Type 1. Limestone. H:20; W:31, 28; Hole - W:17 x18; D:10.5. Intact. Plum-shaped stone, flattened on one end coming to a point on the other. The mortar hole itself is oval (again very slightly flattened and pointed). Depression quite deep and narrowing in its depth. Interior lightly smoothed. Stone itself has flattened sides and rounded base that would sink well into floor. Stone pecked to give it its shape? A series of circular depressions on the base - a pattern? Off-white limestone, inclusions visible in the depression.

S389 Room 19. Saddle quern. Type 1. Andesite. L:pres. 43; W:25, 19, 16; Th:7-19. One end (small) broken off. Thick and massive, must have remained in situ. Curved working surface, very deep curve. One curved end broken off. Work surface does not extend all way up the other end. Tapers in plan to broken end. Bottom surface ridged and very thick. Would have seated well into a dirt floor. Edges rough and chipped, broken.

S390 Room 19. Saddle quern. Type 1. Quartz-gabbro. L:40; W:26; Th:10, 5.5. One end broken off - narrow end. Large, shallow saddle quern. Pear-shaped in plan, tapering toward broken end. Curved lip at wider end. In section this end flares out. Bottom surface slightly curved but basically flat. Edges of work surface slightly roughened. Work surface flattened and smooth.

S391 A18/17 5. Shallow mortar. Type 2. Limestone. L:51; W:32; Th:17.5, 2.5. In four pieces. Oval-shaped, originally probably rectangular. Very thick at one end thin at other through use. Work surface concave and hollowed, well smoothed. Max. depth: 4cm - 4.5 cm. Edges straight, end roughly squared. Distance of approx. 6 cm. to where the hollow begins. Bottom surface flat. Beige, white compact limestone, small inclusions. Areas of red. Badly burnt.

S392 A18/17 5. Gaming stone (Zenet type 1). Limestone. L:33.8; W:15.4; Th:11.4. Intact. Parallel-sided, round-ended riverstone. Sides roughly straight. Both faces flat. One face has a single row of ten small shallow depressions, and one larger deeper depression at the end.

S393 A18/17 5. Pounder. Type 1. Felsite. L:pres. 8.4; W:4.2; Th:4.1. Broken, fragment only. Elongated in shape, though broken. Triangular-shaped in section. Narrow end roughened through use as a pounder. Edge also rough. One side very smooth (from use?) Other two uneven, but good for holding.

S394 Room 15. Pecking stone. Chalcedony. Diam:5; H:4.4. Intact. Multi-faceted, flattened sphere, six to seven sides. All faces roughened and pecked through use.

S395 Room 12. Whetstone. Type 1. Limestone. L:17; W:3.3; Th:2.2. Intact. Elongated, sub-rectangular in section. Rounded at one end, curved and pointed on the other. White limestone with much brown weathering on one side. Smoothed surfaces, slightly concave from use.

S396 Area 25. Jar cover? Limestone. Diam:10.7; Th:4.5. Intact. Disc. Flattened on one face, curved on other. Circular in plan. Flattened area on one edge. White-yellow with many small black grits. Hollows where originally conglomerate.

S397 A19 5. Rubbing stone. Felsite. L:9.8; W:3.8; Th:1.8. Intact. Elongated, oval. One surface flattened, smooth from rubbing, darkened. Other surface curved, also very smooth. Pointed ends, no sign of wear.

S398 Room 12. Pecking stone (re-used as a scraper). Chalcedony. H:3.9; Diam:7.3. Fragmentary, less than half preserved. Used also as a tool? Ridged piece of chart with one concave surface. Originally a cube or sphere? Badly broken but on purpose? Secondary use as a kind of discoidal scraper? Extant side surfaces pecked and pitted like a pecking stone. Two surfaces formed by removal of large flakes. Good grips for hands. Some secondary flaking? Hard to tell.

S399 Room 10. Mortar. Type 1. Limestone. L:35; W:14, 21; Th:18.5, 21.5. Intact. Ovoid piece of stone, flattened on one end. Darkened areas, black from ash, burning? One end of bottom surface smooth, also sides worn. Base slightly curved. Oval depression. Deep, nearly through the thickness. Interior pecked, not very smooth. Diam: 12 x 15, tapers at depth.
Depth: max. 15.5.

S400 Room 10. Quern. Type 2. Limestone. L:29; W:23.5; Th:9. Intact. Near-circular disc, edges slightly rounded. Flat in section, basically except for slightly concave work surface. Coarse, gritty texture. Sandy, white with many largish inclusions, grey, brown, green.

S401 Area 26. Quern. Type 2. Gabbro. L:27.3; W:17.4; Th:6, 3.5. Intact. Small, oval, quite narrow in section. Work surface well worn and smooth, slight lip at one end. Other face slightly curved, many black areas smoothed from friction of use?

S402 Room 10. Gaming stone (Zenet type 1). Limestone. L:25.3; W:19.3; Th:10.2. Intact. Oval-shaped river-stone. Edges rounded. One face flattened, other convex. Flat face has three converging rows of ten circular depressions each. The rows are slightly curved. Other face has possible rows of depressions? Five or six circular depressions visible? Oval area of general pitting. Roughened, slightly pitted surfaces. Beige-white, some inclusions.

S403 Room 27. Gaming stone (Zenet type 1). Limestone. L:26.9; W:5.6, 11; Th:4.6. Intact. Elongated, slightly tapering in its length. One end flattened (narrow end), other curved to one side. Edges basically straight; both surfaces flat. Three parallel rows of ten very shallow, pecked depressions, very small. Brittle, easily flaked. White-beige. Both ends worn, used for pounding (?) as they are flaked.

S404 Room 10. Saddle quern. Type 2. Gabbro. L:29.4; W:14.7; Th:7.2, 4.3. Intact. Oval, slightly more pointed at one end. Other end has a pronounced raised edge from working (grinding). Narrower end slightly raised only. Work surface very smooth and worn. Edges damaged and irregular. Bottom face mostly flat, one concave area, very smooth indeed, used? Bottom surface quite smooth anyway from friction.

S405 Room 19. Quern. Type 2. Gabbro. L:24.3; W:17.5; Th:4.5. Intact. Small, oval-shaped. Flat top worn surface with slight ridges at the end. Surface was very smooth, especially visible near ridges. Bottom surface slightly curved, smooth. Some chipping along one edge.

S406 Room 10. Quern. Type 2. Limestone. L:28.5; W:18; Th:3.5, 4.8. Intact. Oval. Sides curved, two curved areas along one side. Many large conglomerates visible on the flattened, smoothed work surface. Some worn and smoothed, others not. Flattened to slightly curved in section. Hollows on bottom surface where conglomerates have fallen out. Fine, sandy graining. White-beige.

S407 Room 10. Quern. Type 2. Andesite. L:28.3; W:13; Th:6.5, 4.5. Intact, some breakage along one edge, also some damage on another. Small, elongated oval stone. Shallow curve, concave work surface. Bottom surface very smooth, rounded, with three uneven areas. On elevation pear-shaped. Very slight ridges at the ends of the work surface. Work surface smooth and even.

S408 Room 27. Quern. Type 2. Andesite. L:30; W:17.5; 12; Th:4, 3. Intact, one end broken off. Oval with slight 'V' in the middle. Tapers toward extant end, other end broken. Smooth, flat work surface with slightly ridged end (edge). Very smooth area at finished end. Oval in section; bottom surface curved.

S409 Room 28. Quern. Type 2. Andesite. L:31.5; W:11, 16.5, 8; Th:3.5, 6. Intact, edges damaged. Eye-shaped, curved at one end, narrow and blunted at other. Widens in middle. Work surface smooth and flat, shallow curve. Slight ridge at narrow end. Bottom surface smooth and rounded. Thickens in section. Narrow end blunted and worn. Pushed against something to keep it from moving.

S410 Room 10. Work surface. Andesite. L:30; W:22; Th:6, 7.5. Intact. Trapezoidal. Areas of smoothing and depressions on one surface. Used as a work surface? Other surface curved, smooth also, but just the nature of the stone. One edge squared off, broken in antiquity.

S412 Room 28. Gaming stone (Zenet type 1). Limestone. L:26; W:16; Th:7, 3.5. Intact. Sub-rectangular riverstone. Two sides straight, ends curved outwards. Two flattened surfaces, edges curved. One surface: three near-parallel rows of ten shallow circular depressions. Slightly curved lines. Eleven depressions on top line. Bottom line almost solid. Second surface: Three rows of ten shallow circular depressions. The three rows are curved and come together at one end. One larger depression at the wide end or break? White in colour.

S413 Room 12. Gaming stone (Zenet type 1). Limestone. L:32; W:27.5; Th:11.5. Intact. Near-circular stone, slighly flattened on one edge or almost curved, intentional? Both surfaces flattened, one slightly concave. This surface has three rows of ten(?). shallow depressions, plus a few extra larger shallow depressions. Hard to see owing to weathering and some could be natural. Curved area on one edge, very smooth, looks intentional - for supporting some sort of upright? Triangular-shaped chunk missing at one end. Rather powdery on surface. White, weathered.

S414 Room 12. Stone weight with suspension hole. Limestone. L:27.5; W:15, 21, Th:approx. 14. Intact. Large with a very small circular hole at one edge. Natural, but utilised? Two curved depressions on two sides, intentional? Some areas smoothed, one face flattened. Hole possibly natural, at least to begin with. Looks as though there has been some widening out and shaping. Some flaking on exterior of stone. White with little black grits. Weight over 13,000 gr.

S415 Room 28. Stone weight with suspension hole. Limestone. H:31.5; W:7, 19.5; Diam:(hole)5.5,1.4. Intact. Triangular with curved, tapering end. Circular hole pecked at narrow end. Other end mushrooms out, curved. Stone gives impression of truncated pyramid from certain angles. It has been shaped extensively. Top well-rounded and thin in section. Hole starts out large and then tapers to a small opening. Weight 10,025 gr.

S416 A19 6. Gaming stone (Zenet type 1). Limestone. L:32.5; W:12; Th:12. Intact. Thick, rectangular. Three sets of three rows of ten circular depressions on three faces. One set worn and confused. Stone curved at one end, elongated at one end and curve on the other. One flat surface (not very clear): three rows of ten, with one extra larger depression at least, perhaps four. One convex face: clear three rows of ten with one larger. One face flat (small) and confused set of depressions, one concave - no depressions.

S417 Room 9. Rubber pounder. Type 2. Diorite. L:12.7; W:6.5, 10.5; Th:4. Intact, one chip missing. Discoid. Both surfaces smooth and well worn due to use. Areas of darkening due to compacting of surface through use. One end curved, the other flat. The latter rough and pitted from use as a pounder.

S418 Room 9. Pounder. Type 1. Andesite. L:9.2; W:4.7; 4.5; Th:3.75. Intact. Small, elongated, oval. One surface flattened, some areas very smooth from use (very light). Other surface convex, some areas of pitting from hammering. These also on the flattened surface - a narrow band of roughening that reaches to the end from hammering or pounding. Both ends pitted and rough.

S419 Room 12. Rubbing stone Type 1. Diorite. L:19; W:6.5 - 7; Th:4.5. One chip broken off at one end. Elongated, one end curved, other flattened but on a diagonal. Sides straight. Both surfaces flat, one very smooth, worn, especially toward one side. This gives the section a very curved edge, appropriate as used for a rubber. Probably with a quern.

S420 Room 10. Rubbing stone. Type 1. Limestone. L:29.5; W:9.5, 12.5; Th:6.5. Intact. Elongated oval, slightly widened at one end. One end rounded, the other curved to one side. One surface flat, even and smooth. This surface blackened. The other broken along a flat cleavage plane in two places. White tinged pink and blackened, some areas flaky (thin). The last three qualities due to weathering or being subjected to fire or intense heat. Narrow end smoothed, used for pounding?

S421 Surface Area A. Axe type 4. Felsite. L:15; W:4.7, 6.3; Th:1.8, 2.1. Very worn. Through condition, hard to tell original shape or thickness. Both faces uneven with lumps and bumps; some areas very smooth and flat. One butt end flattened, other curved. Part of the original sharpened and visible ground. Sides flattened in places, rectangular in section. Basically unaltered riverstone in the process of being blocked out. See S298, S328.

S422 A19 10. Pounder (?). Limestone. L:ca.9.8; W:3.4, 4.5; Th:2. Intact. Elongated. Flares toward one end. Narrow and rounded at other end. Slight curve along one edge. Wider end chipped and flaked from use. Slight shoulder on the way to wider end. Narrow end shows some sign of wear, light roughening. One face smooth, other rough due to weathering. Smooth surface slightly concave.

S423 Room 12. Quern. Type 2. Limestone. L:24; W:16; 10; Th:6,7. Broken at each end. Section basically rectangular. One surface roughened. Other surface curved, concave, used for grinding or rubbing. Smooth. White with many black inclusions, fine, brown, green. Blackened and red-orange areas due to intense heat, burning.

S424 Room 8. Unidentified (jewellery (?)) Type 5. Serpentine (antigorite). L:3.5; W:3.3; Th: .5. Intact. Sub-rectangular, a flake. Triangular in section so two planes on one face. Other face slightly curved. Secondary flaking? One plane of the two-plane surface very smooth. Used as a tool?

S425 Room 18. Whetstone? Type 1. Limestone. L:11.5; W:3.4, 3.8; Th:2.2, 2.8. Intact. Sub-rectangular. Sides straight, both ends curved. Worn? Surfaces flat, slightly concave and very smooth. Used as a whetstone? Calc cover.

S429 Surface Area G. Pounder. Diabase. L:20.5; W:3.5, 6.0; Th:4,6. Width of groove: 1.1, 1.5; depth: 1 mm. Intact. Chalcolithic? Shape certainly not similar to anything found at Phaneromeni. Being re-used? Tapered at one end, elongated, cylindrical body, other end flattened on a diagonal. Parts of lower end and faces smoothed, though the surface is much weathered. This end used as a pestle. Groove cut around the body of the stone about 2/3 of way up. Not straight, droops slightly towards the edges. Narrow end used for pounding? Whole thing could have been used as a rubber?

S430 Room 16. Stone basin or trough. Limestone. L:42.5; W:21, 32; Th:(max.) 9; L:37; W:10, 17; Depth:(max.)1.9. Intact, a few chunks missing (plow and pick marks). Piriform stone with flattened end. Smaller similarly shaped depression, pecked into it, extended all the way to the narrower, flattened end. Could have been used for pouring. Base convex, some areas flattened due to use associated with the basin or to make it sit in a floor better? Surface of stone smooth, surface of depression, rough pecked. Stone white with many fine black inclusions. Small curved cut at narrow end, intentional?

S431 G Surf. Gaming stone (Zenet type 1). Limestone. L:32.5; W:9, 14; Th:7, 7.5. Intact. Elongated, pear-shaped, narrow end slightly pointed, other slightly flattened though flaked and broken in and around the edge. Three rows of ten circular depressions clear and quite positively pecked. A larger deeper impression at the wider end, the width of two rows. Depressions: 1.5-2 cm. across; large one: 3.5 - 4.0. Smooth, white-beige, tiny dark inclusions.

S432 Eastern extension of WAM. Rubbing stone. Type 2. Limestone. L:8.8; W:7.4; Th:3.4. Intact. Oval. One surface flat, other slightly curved. Curved surface rough and calc-covered. Flat surface used for grinding. Thin in section.

S433 Room 13. Rubber pounder. Type 2. L:10.8; W:8.8; Th:5.4. Intact. Discoidal, smooth riverstone. One face curved, other flat. One end double-faceted from pounding. Other end pitted area from pounding - oval in shape. Curved surface has a small area of pounding.

S434 Room 13. Hammerstone. Type 1. Andesite. L:10; W:4.6; Th:4. Broken. Next to 433. Elongated, oval in section, one end rounded, the other broken. One side flattened and smooth, possibly from use as a whetstone. Two pitted areas on one face and one pitted area on the other from use as a hammerstone. Might also have served as a rubber.

S435 Room 7a. Pounder. Type 3. Andesite. L:6.9; W:6; Th:5.1. Intact. Hand-sized, near-circular. One face flat to concave, other convex. One end multi-faceted and flattened from use as a pounder. Some evidence of pounding at the other end. Oval shaped area. Some pitting on each face from hammering. Much of the surface very smooth, darkened from use as a grinder?

In situ. A25, Room 26. Mortar. Limestone. L:25; W:20; Th:11.7; first hole - diam:14; depth:3.8; second hole - diam:8.5; depth:3.6. Intact. Very shallow, small mortar. Circular hole face up, roughly pitted depression. Secondary depression to the side, less roughly pitted.

In situ. A. Room 8. Basin. Limestone. L:38; W:28; Th:9; basin - L:28; W:15; depth:7.5. Intact. Rectangular stone, both long sides slightly concave. Rectangular depression roughly pecked.

In situ. S. of WAP. Room 27. Mortar. Limestone. L:27; W:ca. 22; Th: hole - Diam: 17 x 15; depth:6.5. Irregular.

In situ. A. Room 28. Stone with pecked area. Andesite? L:31.5; W:27; Th: ca. 8. Pecked area: L:18; W:16. Intact. Oval.

In situ. WAP. Room 7a. Mortar. Limestone. L:22.5; W:pres.:9; Th: 12. Hole:L:15; W:5; depth:9. Broken, half preserved. Small, sub-rectangular stone.

In situ. WAO. Room 30. Mortar. Limestone. Diam: 27.5; H: 20; Diam(hole):17.2 x 16; depth:9.5. Intact. Basically circular, lying on its side at the end of the wall, incorporated in the hole. Deep circular depression. Inside slightly rough.

In situ. A25. Room 26. Mortar. Limestone. L:40; W:32; Th:15; Diam(hole):20, 23; depth:6.8. Intact. Oval, V-shaped in depth. Possibly part of a plaster basin, the base of it.